

Carleton University

L. ROSE

Undergraduate Calendar
1975-76



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Carleton University

Thirty-fourth Annual
Undergraduate Calendar
for the Academic Year 1975-76

Because this Calendar is published several months in advance of the beginning of the academic year, the University reserves the right to make whatever changes may be required, including alteration of the various fee schedules and cancellation of particular courses.

Carleton University
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General Information

Undergraduate Studies

The following schedule contains the dates prescribed by the University Senate for academic activities and for procedures of academic administration.

The academic year is divided into two sessions:

Winter Session

The winter session commences in September and continues until the end of the examination period in early May. The *First term* of the winter session consists of the months September to December. The *Second term* consists of the months January to May. Courses are offered during the day and the evening.

The *undergraduate Spring term* of the winter session commences in late January and runs to May.

Summer Session

The summer session commences in May and continues until the end of the examination period in August. The *Evening division* begins in May and continues until August while the *Day division* begins in July and continues until August. Courses offered in the first or second halves of these periods are designated First or Second term courses respectively.

Summer Session 1975

May 14, 15
Registration, summer evening division

May 19
Statutory holiday, University closed

May 20
Summer evening classes begin
Last day for application for degree program transfers effective for summer session

May 27
Last day for late registration and course changes, summer evening division

June 6
Last day for withdrawal from First term evening division half courses

June 27
Last day for application for winter session supplemental and special examinations

July 1
Statutory holiday, University closed

July 2
Registration for summer day division
Last day for withdrawal from evening division full courses

July 3
Summer session day classes begin

July 9
Last day for late registration and course changes, summer day division

July 11
Last day for withdrawal from First term day division half courses

July 23
Last day for withdrawal from day division full courses and Second term evening division half courses

August 1
Last day for withdrawal from Second term day division half courses

August 4
Civic holiday, University closed; evening courses meet on the following Friday

August 13
Last day for summer session classes
Winter session supplemental and special examinations end

August 14-16
Summer session examinations

August 22
Last day for receipt of summer session grade reports by the University Registrar

September 17
Last day for applications for summer session supplemental examinations

October 4
Summer session supplemental and special examinations end.

Winter Session 1975-76

April 1 Last day for routine application for admission from candidates whose documents originate outside Canada	November 7 Fall convocation for the conferring of degrees
July 1 Last day for routine application for admission from mature matriculants, from those presenting post-secondary education qualifications, and from those transferring from other universities	December 5 Last day of First term classes
August 1 Last day for routine application for admission from applicants with high school qualifications	December 8 Last day for handing in term assignments, subject to any earlier course deadline
August 15 Last day for routine application for admission from Special students	December 8-20 Final examinations in half courses; mid-term examinations in Qualifying University year and First year courses may be scheduled as announced
September 1 Statutory holiday, University closed	January 5 Second term classes begin
September 2 Last day for receiving applications for degrees from potential fall graduates	January 9 Last day for receipt of First term half course grade reports by the University Registrar Last day for application for degree program transfers effective for Second term of winter session
September 8 General Faculty Board meets	January 23 Last day for course changes for Second term half courses
September 8-10 Registration for winter session to be scheduled as announced	January 26 Last day for applications for supplemental and special examinations in First term half course finals
September 11 Classes begin in all courses	January 28 Spring term classes begin
September 17 Last day for applications for summer session supplemental examinations	February 1 Last day for receiving applications for degrees from potential spring graduates
September 19 Last day for application for degree program transfers effective for First term of winter session	February 4 Last day for registration and course changes in Spring term classes
October 3 Last day for late registration Last day for course changes for full courses and First term half courses	February 13 Last day for withdrawal from full courses and Second term half courses
October 4 Summer session supplemental and special examinations end	February 23-27 Study period (except for Spring term classes)
October 13 Statutory holiday, University closed	February 28 Half course supplemental and special examinations end
October 24 Last day for withdrawal from First term half courses	March 5 Last day for withdrawal from Spring term courses
	April 9 Last day of Second term classes

April 13

Last day for handing in term assignments, subject to any earlier course deadline

April 14-May 4

Final examinations may be scheduled as announced

April 16-18

Easter weekend, University closed

April 23

Last day of Spring term classes

May 11

Last day for receipt of grade reports by the University Registrar

To be announced

Spring convocation for conferring of degrees

June 25

Last day for applications for supplemental and special examinations

August 3-10

Supplemental and special examinations may be scheduled as announced

Summer Session 1976

May 19, 20

Registration for summer evening division

May 24

Statutory holiday, University closed

May 25

Summer evening classes begin

General Information

The Organization of the University

Carleton University has Faculties of Arts, Science, Engineering and Graduate Studies and Research. Schools of Commerce, Journalism, and Public Administration are associated with the Faculty of Arts, as are the Institute of Soviet and East European Studies and St. Patrick's College. The School of Architecture and School of Industrial Design are associated with the Faculty of Engineering.

The Faculty of Graduate Studies and Research includes the Institute of Canadian Studies, the School of International Affairs, and the School of Social Work.

The University offers programs of undergraduate study leading to bachelor's degrees in Arts, Journalism, Commerce, Music, Science, Engineering, Architecture and Industrial Design; and to a Certificate in Public Service Studies. The University's Faculty of Graduate Studies and Research offers programs leading to degrees in Master of Arts, Master of Journalism, Master of Science, Master of Engineering, Master of Social Work and Doctor of Philosophy studies in certain fields, it also offers a program leading to a Graduate Diploma in Public Administration.

Purpose of the Calendar

The Undergraduate Calendar outlines requirements for admission, information concerning registration; course load, changes and withdrawals; and examinations. Regulations governing promotion and academic standing are included in the sections of the Calendar dealing with each Faculty and School. A separate calendar is published by the Faculty of Graduate Studies and Research.

How to Use the Calendar

All students should familiarize themselves with the contents of this Calendar and make themselves aware of regulations that apply to them, as prescribed by the University as a whole, by individual faculties and by departments. The following sections of the Calendar are most important in this regard:

1. *General Regulations:* Regulations applicable to students in all faculties and to Special students (p. 25).
2. *Faculty Sections:* There are sections for each undergraduate faculty: (a) Arts, including the Schools of Commerce, Journalism and Public Administration, the Institute of Soviet and East European Studies, and St. Patrick's College (p. 51); (b) Engineering including the

Schools of Architecture and Industrial Design (p. 255); and (c) Science (p. 323). Information on general regulations for each faculty is provided first, and students should make themselves familiar with regulations governing the faculty (and school, institute or college where applicable) in which they are or will be registered.

3. Following the general faculty information are the departments of the University, arranged in alphabetical order within the faculty of which they are a member. Students should make themselves familiar with the regulations of every department in which they plan to take courses, including those of faculties other than the one in which they are registered.

4. Interfaculty courses are offered for students in all faculties. This section includes courses in Computing Science, Interdisciplinary courses, Technology, Society, Environment Studies, and a list of courses offered by the various departments which are open to students registered in other departments ("Courses for Non-Majors").

Please consult the index at the back of the book for guidance in finding detailed information and regulations.

Administration of Regulations

The academic regulations as stated in this Calendar include the main legislation governing admissions and standing for undergraduate study as approved by the Senate. The Registrar is responsible for administering the regulations in a way consistent with academic good sense and the equitable treatment of all students. Students are invited to consult their Faculty Registrar about the interpretation of the regulations. A student has the right to appeal the application of a regulation to the appropriate faculty committee on admission and studies. The Faculty Registrars' Offices will assist in the preparation of such appeals.

Registrarial Services

Registrarial services are available to students through the following offices:

New Applicants and Prospective Students

The Admissions Office
Room 407, Administration Building
Telephone 613-231-3730

Current Undergraduate Degree and Certificate Students

Faculty Registrar Offices are the main point of contact for current undergraduate degree and certificate students and have been established for each faculty as follows.

Faculty of Arts

(including Journalism, Commerce, Music, and Public Administration, but excluding St. Patrick's College)

Room 312, Paterson Hall

Telephone 231-6690

Faculty of Arts, St. Patrick's College

Room 346, St. Patrick's College Building

Telephone 231-2745

Faculty of Engineering

(including Architecture and Industrial Design)

Room 353, Mackenzie Building

Telephone 231-4313

Faculty of Science

Room 212, Herzberg Laboratories

Telephone 231-6705

Special Students and Students Enrolled in Non-Credit Courses

The Office of Continuing Education

Room 302, Administration Building

Telephone 231-6660

Classification of Students

For purposes of studying at Carleton University and for the administering of regulations governing these studies, the following student classifications are recognized.

Full-Time Undergraduate Degree Student

A student who has been formally admitted to an undergraduate degree program and who:

1. for the Faculties of Arts and Science, is taking a minimum of four full courses or the equivalent during the winter session;
2. for the Faculty of Engineering, the School of Architecture and the School of Industrial Design, is following the course load as shown for each year in those programs.

Part-Time Undergraduate Degree Student

A student who has been formally admitted to an undergraduate degree program and who:

1. for the Faculties of Arts and Science, is taking a maximum of two full courses or the equivalent during any academic session;

2. for the Faculty of Engineering, is taking a program which has the approval of the Faculty.

Special Student

A student who is registered in a degree-credit course or courses but who has not been formally admitted to a degree program.

Extension Student

A student who is registered in a "non-credit" course offered by the Extension Division of the Office of Continuing Education.

Other Calendars

Graduate Studies and Research Calendar

Available from:

Dean of Graduate Studies and Research

Carleton University

Ottawa Canada K1S 5B6

Summer Session Calendar

Available from:

Office of Continuing Education

Carleton University

Ottawa Canada K1S 5B6

Extension Calendar

(non-credit/certificate)

Available from:

Office of Continuing Education

Carleton University

Ottawa Canada K1S 5B6

Course Numbering System

Note: Half courses are marked with the symbol ★ (with the exception of courses offered in the School of Architecture).

Departmental Numbering

Each course number is prefixed by the number or numbers of the Department, School or Committee under whose auspices the course is offered. Academic departments are listed under the appropriate Faculty.

10 Interdisciplinary Humanities
11 Art History
12 Canadian Studies
13 Classical Civilization
14 Classics
15 Greek
16 Latin
17 Comparative Literature
18 English
20 French
22 German
24 History
26 Italian
28 Journalism
29 Linguistics
30 Music
32 Philosophy
34 Religion
36 Russian
38 Spanish
40 Interdisciplinary Social Sciences
41 Accounting
42 Management Studies
43 Economics
45 Geography
46 International Affairs
47 Political Science
49 Psychology
50 Public Administration
51 Law
52 School of Social Work
53 Sociology
54 Anthropology
55 Soviet and East European Studies
56 Sociology-Anthropology
59 Multidisciplinary Technology, Society, Environment
60 Interdisciplinary Sciences
61 Biology
63 Biochemistry
65 Chemistry
67 Geology
69 Mathematics (Majors)
70 Mathematics (Honours)
71 Mathematics (Education)
75 Physics
76 Architecture Division A
77 Architecture Division B

78 Architecture Division C
79 Architecture Division D
80 Architecture Division E
82 Civil Engineering
85 Industrial Design
88 Mechanical and Aeronautical Engineering
94 Systems Engineering
95 Computing Science
97 Electronics
99 Engineering Projects

St. Patrick's College

00 Mathematics, Science and ULAP
01 Economics, Political Science and Law
02 English
03 History and Art
04 Psychology and Interdisciplinary Courses
05 Classics and Latin
06 Modern Languages
04 Philosophy
08 Sociology
09 Religion

Course Numbering

Academic departments are listed alphabetically under the appropriate Faculty'

The course numbering pattern is, in general, as follows:

010-099
Courses usually taken in Qualifying University year

100-199
Courses usually taken in First year

200-299
Courses usually taken in Second year

300-399
Courses usually taken in Third year

400-499
Courses ordinarily taken in Fourth year Engineering, Fourth and Fifth years Architecture, and Fourth year (Honours) Arts and Science

500-599
Courses ordinarily taken by Graduate students

Programs of graduate study, first offered at Carleton in 1954, provide opportunities for advanced study, research and critical scholarship in a number of disciplines. Carleton's libraries, laboratories, and other research facilities enable graduate students to perform scholarly work of consistently high calibre, and help to foster a spirit of independent investigation.

The location of the University in Ottawa also enables graduate students to take advantage of the research facilities connected with many national institutions and government departments. In addition, through the program of Inter-University Co-operation in Graduate Instruction, full-time graduate students may take some approved credit courses at the University of Ottawa.

Graduate programs currently offered at Carleton are the following:

Graduate Diploma in Public Administration (D.P.A.)

Master of Arts (M.A.)

In Anthropology, Canadian Studies, Classics, Comparative Literature, Economics, English, French, Geography, German, History, International Affairs, Philosophy, Political Science, Psychology, Public Administration, Religion, Spanish, Sociology, and Soviet and East European Studies.

Master of Engineering (M.Eng.)

In Aeronautical, Civil, Electrical, Materials and Mechanical Engineering.

Master of Journalism (M.J.)

Master of Science (M.Sc.)

In Biology, Chemistry, Geology, Mathematics and Physics.

Master of Social Work (M.S.W.)

Doctor of Philosophy (Ph.D.)

In Biology, Chemistry, Economics, Engineering (Aeronautical, Civil, Electrical and Mechanical Engineering), Geology, History, Mathematics, Physics, Political Science, Psychology, and Sociology.

Special Students

Students interested in pursuing graduate studies at Carleton are urged to note the following University regulation: "Course work completed as a Special student is not normally acceptable for degree credit in the Faculty of Graduate Studies." Further information is available from the Graduate Studies and Research Calendar.

Graduate Studies and Research Calendar

The studies of each candidate will be directed by a department, institute, or school, and are governed by the general regulations outlined in the Graduate Studies and Research Calendar. To obtain a copy of this calendar, write to:

The Faculty of Graduate Studies and Research
Carleton University
Ottawa, Canada K1S 5B6

University Office Guide

Hours of Operation

Registrar's Offices: Faculty of Arts, Faculty of Science, St. Patrick's College, Office of Continuing Education and Office of Admissions

Labour Day to May 31

Monday to Friday 8:30 a.m.-5 p.m.

June to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

Registrar's Office: Faculty of Engineering (including Architecture and Industrial Design)

Labour Day to May 31

Monday to Friday 9 a.m.-12 noon; 1:15-5 p.m.

June to Labour Day

Monday to Friday 8:30 a.m.-12 noon; 1:15-4:30 p.m.

Evening Service, Office of Continuing Education

Labour Day to May 31

Monday to Thursday 6:45-9 p.m.

June to Labour Day

Monday to Thursday 6:30-8:30 p.m.

Students registered in degree programs may receive evening counter service (general information and forms) from the Office of Continuing Education.

Business Office

Labour Day to May 31

Monday to Friday 9 a.m.-5 p.m.

Monday to Thursday 7-9 p.m.

June 1 to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

Mondays and Thursdays only 6:30-8:30 p.m.

Library

Summer Session, May 20 to June 29

Monday to Thursday 8:30 a.m.-10:15 p.m. (10:15-11 p.m. study facilities only)

Friday 8:30 a.m.-5 p.m. (5-11:15 p.m. study facilities only)

Saturday 12:30-4:45 p.m. (9:45 a.m.-12:30 p.m. study facilities only)

Sunday closed

June 30

8:30 a.m.-5 p.m.

July 1

Closed: Dominion Day

July 2 to August 17

Monday to Thursday 8:30 a.m.-10:15 p.m. (10:15-11 p.m. study facilities only)

Friday 8:30 a.m.-4:30 p.m. (4:30-11 p.m. study facilities only)

Saturday 9:45 a.m.-4:45 p.m. (4:45-11 p.m. study facilities only)

Sunday (1-11 p.m. study facilities only)

The above hours are subject to change. Any variation will be posted at the entrance of the building.

Winter Session

Monday to Friday 8:30 a.m.-10:15 p.m. (10:15 p.m.-12 midnight, study facilities only)

Saturday 9:45 a.m.-4:45 p.m. (4:45 p.m.-12 midnight, study facilities only)

Sunday 1-4 p.m. (10 a.m.-1 p.m.; 4 p.m.-12 midnight, study facilities only)

When classes are not in session hours are reduced. Schedules are posted at the entrance.

Bookstore

Hours of operation vary and are posted at the Bookstore entrance.

St. Patrick's College: Registrar's Office

Labour Day to May 31

Monday to Friday 8:30 a.m.-5 p.m.

(Closed 12 to 1 p.m.)

June to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

(Closed 12 to 1 p.m.)

St. Patrick's College: Business Office

Labour Day to May 31

Monday to Friday 9 a.m.-5 p.m.

June to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

St. Patrick's College: Library

Hours will be posted at the entrance to the Library.

Student Services

Labour Day to May 31

Monday to Friday 9 a.m.-5 p.m.

June to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

Counselling and Health Services

Monday to Friday 9 a.m.-5 p.m.

Medical Clinic (Unicentre)

Monday to Friday 9.30 a.m.-4 p.m.

Infirmery and Medical Clinic (Glengarry House)

From September to May, 24 hours a day, seven days a week.

Office Locations

Admissions

Room 407, Administration (231-3730)

Alumni Association

Room 501, University Centre (231-3833)

Athletics and Recreation

Room 201, Physical Recreation Centre (231-2646)

Awards Office

Room 202, Administration (231-3735)

Bookstore

Room 306, Southam Hall (231-6616)

Business Office

Room 301, Administration (231-762)

Canada Manpower Centre, Carleton University

Room 508, University Centre (231-2600)

Counselling and Health

Level 6, University Centre (231-4408)

Development Office

Room 510, Administration (231-4430)

General Information Desk

Administration (231-4321)

High School Liaison Office

Room 204, Administration (231-2738)

Infirmery

Level 1, Glengarry House (231-3844)

Information Office

Room 605, Administration (231-3600)

Medical Clinics

Level 6, University Centre (231-2755)

Level 1, Glengarry House (231-3844)

Office of Continuing Education

Room 302, Administration (231-6660)

Office of the Dean of Student Services

Room 330, Paterson Hall (231-3723)

Overseas Students' Advisory Service

Room 330, Paterson Hall (231-3724)

Registrar's Office, Faculty of Arts, Divisions I and II

Room 312, Paterson Hall (231-6690)

Registrar's Office, St. Patrick's College

Room 346, St. Patrick's College (231-2745)

Registrar's Office, Faculty of Engineering (including Architecture and Industrial Design)

Room 353, Mackenzie (231-4313)

Registrar's Office, Faculty of Science

Room 212, Herzberg Physics Laboratories (231-6705)

Residence Information and Food Services

Room 223/225, University Commons (231-3610)

Students' Association

Room 401, University Centre, (231-4380)

St. Patrick's College Students' Association

Room 303, St. Patrick's College (231-4401)

Student Services

Office of the Dean of Student Services

Dean Norman D. Fenn
Room 330, Paterson Hall
Telephone 231-3723

The Office of the Dean of Student Services can be a valuable source for a student who is seeking information pertaining to almost any aspect of student life on campus. The office exists to ascertain the needs of the student community and where needs become apparent to provide the appropriate services.

The Dean's office is involved in programming of such a nature as to facilitate interaction among the various constituents of the university. Members of the Dean's office are available in an advisory capacity which includes an Advisory Service for overseas students.

The Office has the overall administrative responsibility for the following departments:

Department of Athletics and Recreation;
Awards Office;
Counselling and Health Services;
Housing and Food Services including Residence;
St. Patrick's College Student Services.

St. Patrick's College

Miss Betty Bergin
Co-ordinator of Student Services
Room 305, St. Patrick's College
Telephone 231-3631

At St. Patrick's College, the Co-ordinator of Student Services acts for the Dean of Student Services.

The Co-ordinator works closely with the Department of Physical Recreation and Athletics, the Chaplaincy, the Counselling and Health Service, the faculty, and the Student Association of St. Patrick's College to ensure that the routine and special needs of individual students and of student groups are met promptly.

Athletics and Recreation

Physical Recreation Centre
Telephone 231-2646

The physical recreation program has been designed to meet three general areas of interest: intercollegiate athletics, intramurals, and recreational skill instruction. Although many university students enjoy the challenge and excitement of intercollegiate athletics, others frequently prefer a less demanding level of competition in Carleton's intramural program, while yet another

segment of the university community desires physical expression almost completely devoid of all competition.

To meet these needs, skill-instruction classes are offered in squash, dance, yoga, judo, jiu-jitsu, karate, swimming and gymnastics.

The intramural program includes flag football, cross-country running, basketball, broomball, volleyball, badminton, swimming, curling and hockey. A few of these activities are co-educational.

Carleton's Varsity teams for men (The Ravens) participate in basketball, football, and fencing. The University is a member of the Ontario Universities Athletic Association.

The women's Varsity teams (The Robins) are members of the Ontario Women's Intercollegiate Athletic Association and participate in basketball, volleyball, and fencing.

The University's present outdoor athletic facilities include football and soccer fields as well as hockey and skating rinks. The indoor facilities consist of a fifty metre pool and ten metre diving platform; a fitness centre with jogging track, weightlifting and fitness testing equipment; and a large double gymnasium with four squash courts and a combatives room. The facilities are made available to students either for recreational needs or for organized competition.

The athletic program at Carleton is governed by an Athletic Board comprised of members from the Faculty, Administration and the Students' Association.

Awards Office

Room 201, Administration Building
Telephone 231-3735

Medals are the major academic awards granted by the University to its superior graduating scholars. They have no monetary value.

The Awards Office is responsible for the administration of undergraduate scholarship and bursary programs as well as loans for graduate and undergraduate students.

Scholarships are awarded on entry to the University and to those in course on the basis of superior academic performance. Applications are not required.

Awards and prizes are awarded for excellence in particular areas of study. They may be cash awards or book prizes. No applications are required.

Bursaries are awarded to students who can show genuine evidence of financial need and who have above

average academic standing. Students who are residents of the Province of Ontario or the Province of Quebec are required first to apply for Provincial assistance (Student Awards) (see below).

Financial Aid for Students

Administration of Awards

1. Students receiving scholarships and bursaries exceeding in total \$200 which are under the jurisdiction of the University will ordinarily be paid in two instalments, one in October and one in January. The University reserves the right to withhold the payment of the second instalment in cases where students do not meet the conditions of the award. Awards of less than \$200 will ordinarily be paid in one instalment, in October.

2. Scholarship and bursary recipients who withdraw before the completion of their year will be expected to refund their bursaries or scholarships (or a portion thereof).

Government Aid Programs

Ontario Residents

Canadian citizens or landed immigrants who are residents of Ontario may qualify for assistance from the *Ontario Student Awards Program*. This financial aid scheme is designed to supplement, rather than replace, family and/or student resources. In order to determine the additional funds required, the province objectively assesses the resources of the family and/or the student which could reasonably be used to provide for the student's educational costs. The first \$825 of any award then approved is in the form of Canada Student Loan. This loan is the repayable portion of the total award and is negotiated through a chartered bank or other approved lending institution and is guaranteed by the federal government. The loan is interest free while the student is enrolled full-time and for six months thereafter. Assistance approved beyond \$825 is usually in the form of non-repayable bursary provided by the provincial government. The maximum loan/bursary award a student can receive in one academic year is the total amount of his allowable educational costs. The average Ontario Student Award issued through Carleton University in 1974-75 was \$1,400. Application forms and further information can be obtained by contacting the Awards Office or the Student Awards Branch of the Ministry of Colleges and Universities, Mowat Block, Queen's Park, Toronto, M7A 1C6.

If you wish to have your application processed in time for Fall registration, you must ensure that completed forms are submitted to the Awards Office for processing by July 1. If you want assistance for the full academic year, you must apply before *September 30*. Any applica-

tion submitted between October 1 and January 31 is assessed for one half the normal academic year.

Part-Time Students

Students enrolled in fewer than three full courses are classified as part-time for the purposes of federal/provincial financial aid schemes. These students are advised to contact the Awards Office for information on the availability of financial aid for part-time study.

Residents of Other Provinces/Territories

Canadian citizens or landed immigrants from the territories and all provinces except Quebec may qualify for assistance from the *Canada Student Loans Plan* through their home province. The maximum loan available per academic year is \$1,400. The loan is interest free while the student is enrolled full-time and for six months thereafter. Some provinces also make available non-repayable grant assistance along with this federal loan.

The Awards Office disburses general information on the various provincial aid schemes but application forms and details on individual programs must be obtained from the authorities in the home province. Deadline dates vary but generally speaking, it is wise to apply for financial assistance through the appropriate provincial department before July 15.

Quebec Aid

Applications from entering students for student aid assistance from the Province of Quebec should be made directly to the Awards Office. Deadline date for submission of applications is *September 30*. In order to be accepted by the Department of Education, all applications must be officially stamped by the Awards Officer.

Bursaries

Bursaries administered by Carleton University are awarded to students who have a sound academic standing and who show evidence of genuine financial need.

One application only, available in the Awards Office, is required for bursaries which are administered by Carleton.

For details of medals, scholarships, prizes, bursaries and loans see pp. 394-405.

Overseas Students' Advisory Service

Room 330 Paterson Hall
Telephone 231-3724

The Office of the Dean of Student Services offers an advisory service for overseas students. Information concerning English and academic difficulties, job placement, financial assistance and health and immigration regulations is available through this office.

St. Patrick's College

At St. Patrick's College, the Co-ordinator of Student Services acts as adviser to overseas students.

Placement and Career Counselling: Canada Manpower Centre

Room 508, University Centre
Telephone 231-2600

The Placement and Career Counselling Service is provided by the Department of Manpower and Immigration. The purpose of the service is two-fold.

1. To provide students with a readily available access to employment opportunities. To this end the Centre maintains lists of part-time, summer and regular employment opportunities. As well, each year the Centre arranges for a number of employers, both local and national, to recruit on campus. The majority of these recruiting visits are for the purpose of interviewing graduates and prospective graduates for permanent employment. Information concerning this program is posted early in the academic year. The recruiting season commences the first week of November, usually terminating in late February or early March.

2. To provide students with information about and assistance in preparing for entry into the labour market. Individual and group counselling, covering such topics as labour market trends, specific careers, job hunting and résumé preparation, is available to students seeking or preparing for employment. Also, the Centre maintains a library of up-to-date literature of interest to these students.

All Placement and Career Counselling information may be obtained by contacting the Centre or referring to the notices posted throughout the University. The University papers and radio stations are additional sources of information from the Centre.

Student Housing and Food Services

Residences

Residences are located on the campus itself close to classrooms and University activities, and are connected by tunnel to all parts of the campus. Each of the five residence buildings is provided with lounge, study and storage areas, television and music rooms. Student rooms are equipped to meet the basic needs of the students. Each pair of rooms or suite is provided with a telephone with local and long distance service.

The residence contract covers room and board, three meals a day, seven days a week. Special diets are not provided. Unlimited second servings at all meals are permitted but no allowance can be made for meals which are missed.

Students registered in a course of study in the main faculties of the University or St. Patrick's College may apply for accommodation in women's residence, men's residence, or a co-educational residence which has males and females sharing the floor. Early submission of residence applications is recommended. Do *not* wait until the University acceptance has been received.

To receive your residence application indicate on the University application that residence is desired. All residence information, together with the application, will then be sent to you.

Assignment numbers will be allotted to applications received prior to midnight March 14 by a random draw and from March 15 onward will be numbered when received. No initial deposit is required. A room offer acceptance must be accompanied by \$100 deposit which is applicable to Second term fees.

A complete refund (\$100) will be made only if

1. Carleton University does not accept the student for full-time study in the course requested.

2. Carleton University Registrar's Office has not made its Admission decision by August 15, and the Student Housing Office cancels the Assignment.

A partial refund of \$50 will be made to students who notify the Student Housing Office in writing of their desire to cancel the assignment. Such notice must be received in the Student Housing Office on or before July 15.

Admittance to all residence houses (granted to full-time students only) is not allowed until the total fees or the first instalment has been paid. Total fees have not been established for 1975-76. (Fees for 1974-75 were \$1232 single; \$1132 double). Fees are payable in two instalments with an additional deferment charge of \$8.

The first instalment must be paid at time of registration into residence and the second by the first day of classes in the Second term.

Graduate Housing

Residence on campus has space allotment for graduate students. In addition there are two off-campus houses which will accommodate 22 students in single and double rooms; meals are not provided.

Off-Campus Housing

Telephone 231-3610

The Off-Campus Housing Section is set up to assist students unable to obtain or not interested in on-campus residence accommodation. Listings range from rooms to private houses, giving the rates and amenities provided. This service has been set up to aid out-of-town people, but it is in no way a rental agency. Listings (not available for distribution) are posted in a glass enclosed case in the foyer outside room 223 of the Commons building, and are available 24 hours a day, seven days a week. The University does not undertake to inspect or approve any of the facilities which are listed by the Off-Campus Housing Section.

In addition a service called "Faculty and Staff Listings" is prepared. This lists houses of staff members going on sabbatical leave for periods ranging from six months to two years. These are available on request.

Food Services

Telephone 231-3610

Students residing off campus may use the residence dining facilities, which offer food services programs with unlimited servings, by purchasing a meal plan ticket. Two plans are available one for two meals a day, (lunch and dinner), Monday through Friday, and the other for three meals a day, Monday through Sunday.

The University Centre contains a dining room and two cafeterias which provide "a la carte" service for students and staff throughout the day. The Loeb Building also has a snack bar and the University Commons contains a snack bar. St. Patrick's College contains a small snack bar for provision of "a la carte" meals during the day. In addition many of the buildings are serviced by vending machines for light refreshments.

Conference Services

Telephone 231-3610

During the summer months, residences are used in a dual capacity for summer and transient students and for conference delegates. Full conference requirements

(room, food services, special catering, meeting rooms, etc.) are handled by this section. Rates and details will be sent out on request.

The arrangement of special functions such as wedding receptions, banquets, parties (large and small) and special meetings come within the scope of this section.

The University Counselling and Health Service

Level 6, University Centre
Telephone 231-4408

The Counselling and Health Services are provided to protect and improve the physical and mental health of the students and of the University community. Its responsibilities are to provide treatment, to consult and advise, and to ascertain the fitness of students to perform academic work. When the necessary service cannot be provided by the program, the staff will endeavour, through referral, to make available what is required. The nature of the service demands that the confidentiality of records and information be respected and maintained.

Medical Services

There are two clinics and an infirmary on campus which are staffed by physicians and nurses. The central clinic is on level 6 of the University Centre. There is also a clinic in Room 226 Glengarry House. The Infirmary is located on level 1 of Glengarry House. The services provided by these facilities are available to all students of the University. For further information telephone 231-2755.

Counselling Services

These are located on level 6 of the University Centre. Students experiencing difficulty in adjusting to university and/or problems of a personal, academic or career nature are encouraged to contact the counselling staff. Psychiatrists are in attendance for those requiring psychiatric assessment or care. Additional resources available are testing service and information on career and study opportunities. For the convenience of St. Patrick's College students, a counsellor from Counselling Services has an office at St. Patrick's College. For further information telephone 231-4408.

Bookstore

The University Bookstore is located in Southam Hall. The Bookstore offers a wide range of reference books and books for leisure reading as well as required and recommended books for classroom use. Stationery supplies, material for laboratory use, giftware and other student requirements are also available. A booklet outlining the various services of this facility is available at the

Bookstore. Hours of operation vary in order to provide extended service required during peak periods. Please check the schedule of hours at the Bookstore entrance.

University Centre

The University Centre offers recreational and educational services and conveniences that people may need or desire in their daily life on campus and allows an opportunity to gather in relaxed and informal discussion outside the classroom. The Centre sponsors many events of interest to the community as a whole: films, art and photographic displays, lectures and dances. It also encourages individuals and groups to take advantage of the facilities in initiating their own programs.

Among the services and facilities of the Centre are an arts and crafts workshop, a games area, a music listening room, music practicing rooms, a television lounge, a reading room, a variety store, a barbershop, as well as the food service areas, Counselling and Health services, Canada Manpower, the offices of the Students' Association and the Alumni Association. A more detailed breakdown of services is available from the *University Centre Handbook*.

Carleton University Students' Association
Room 401, University Centre
Telephone 231-4380

Every student enrolled at the central campus at Carleton is a member of the Students' Association. Essentially, this is a student union existing as a lobby to outline the student point of view to the Administration and various government departments, as well as to protect student interests. CUSA also organizes and operates nearly all of the projects and activities involving students on the campus, as well as being financially responsible for the University Centre building.

The Association is a totally autonomous body financed by a levy on full and part-time students. This levy adds up to a working budget of roughly one-quarter million dollars in the Winter term and pays for countless diverse services, facilities and activities for the student body.

The decisions on how this money is spent are made by the 26-member Students' Council, elected annually by the student population. Representation on this body is "rep-by-pop" by faculty, with several seats provided for particular interest groups including graduate, residence, part-time students and three St. Patrick's College Students' Association representatives acting on Unicentre matters.

CUSA organizes and finances, or at least sponsors, numerous very diverse projects and services for the student population, some educational, some social, some cultural, and some just entertaining.

In recent years CUSA has organized, operated or sponsored the following services:

1. *University Centre:* The Store, games room, music practice room, arts and crafts workshops, Rooster's Coffee House, community switchboard, music listening and reading rooms and box office-information service.
2. *Media:* The Charlatan, CKCU-Radio Carleton, Student Directory;
3. *Office of the Ombudsman;*
4. *Legal Advisory Service;*
5. *Birth Control Clinic;*
6. *Co-Curricular Committee;*
7. *Housing Co-ops;*
8. *Travel Service Bureau;*
9. *The Pub;*
10. *Concert, film and dance series.*

The Students' Association is working to expand these programs and to develop new ones. To do so, CUSA welcomes student input and ideas, and individual persons as well as groups are encouraged to make their feelings known to the elected members.

CUSA is a member of the two national student organizations: the Association of Student Councils, and the National Union of Students, as well as the provincially oriented Ontario Federation of Students.

St. Patrick's College Student Government

Room 303, St. Patrick's College

Student government at St. Patrick's College assumes two functions: general representation and administration of student affairs through the Students' Association, and representation of student academic concerns through University Government Students (UGS). These two student representative groups are distinct although a great deal of interaction and cooperation is necessary for effective student government.

Students' Association
Telephone 231-4401

The St. Patrick's College Students' Association has been operating under a student council system for two years. It replaces the former Student Union and is comprised of three executive members, a president and two vice-presidents, in addition to twelve councillors. Members of the executive are elected each spring, with councillors being elected in the fall. The Association is an incorporated body.

The Association has a number of relevant service functions such as sponsorship of pub nights, winter carnival, a paper, radio station and a number of clubs and community service organizations. One very important task of the Association is co-ordination of the Fall Orientation program.

University Government Students
Telephone 231-7188

University Government Students are the eighteen student members of the St. Patrick's College Faculty Board. They represent various year-level constituencies and have an equal voice with professors and administrators of the College in academic policy formation. Such policies include academic planning and programming, instructional and curriculum development, admission and promotion requirements, publicity and liaison, and other topics of academic or administrative concern to the College and University.

All in all, student government in a smaller institution such as St. Pat's has proved very effective, with the high degree of personal involvement being proportionate to the personal rewards.

Alumni Association

Room 501, University Centre
Telephone 613-231-3833

The Alumni Association was founded in 1949. Its objectives are "to contribute to the development of the University, academically and otherwise, and to the effectiveness with which it fulfils its role in society; to establish and maintain mutually beneficial relations and communications between the University and its alumni, and among the alumni members themselves; and to foster an understanding of the function of the Alumni Association among the students of the University, and the University community generally".

Membership is open to all graduates, and to former students of the University who have successfully completed the requirements of a full year in a recognized course leading to a degree, diploma or certificate.

The Association maintains address records, participates in raising funds for the University's development program, publishes information material for distribution to all alumni, and sponsors a program of events and services for alumni and students. The Association also assists branches and informal groups in major centres in North America.

The Association is governed by a Board of Directors. The President, the three Vice-Presidents and six of the twelve Directors are elected yearly by the members at the annual meeting of the Association. Representatives of all formally recognized geographic or interest-group branches of the Association are ex-officio members of the Board.

General Regulations

General Admission Requirements

Persons wishing to follow programs of study leading to a degree or certificate must be formally admitted to the University.

Persons wishing to register in degree-credit courses without having been formally admitted to the University may do so as Special students. See p. 41.

Applicants should note that in view of limited accommodation in certain programs, holding the minimum admission requirements can only establish eligibility for selection to the University. This is particularly true for admission to all years of the Bachelor of Architecture and Bachelor of Industrial Design programs as well as the First year of the Bachelor of Journalism program.

This publication contains admission requirements for the 1975-76 academic year only. Students wishing to apply for 1976-77 should request a copy of the 1976-77 Admissions Bulletin which will include any revisions made since publication of this Calendar.

Applicants are reminded that the admission requirements contained herein are guidelines and, as such, are applied with an appropriate degree of flexibility. Individuals who are in any doubt about their eligibility for admission are encouraged to enquire at the Office of Admissions.

In the past few years, considerable flexibility has been introduced into the admission requirements but, at the same time, essential features have been preserved. As admission requirements are subject to continuing review, the University will most certainly make additional changes in the future, but only when convinced that these changes will be in the best interests of the student.

Guidelines have been adopted enabling the University to deal with applications from the most highly experimental schools. High school officials are invited to contact the Office of Admissions if it is felt that our admission requirements cannot accommodate certain programs being offered.

Dates

Students may be admitted to register in January, May, and July as well as in September. (See pp. 7-9 for details on the Academic Year.) It should be noted, however, that a full range of courses is only offered during the Winter session, i.e. September to May.

Levels of Entry

Students may be admitted to Qualifying University, First or Upper years depending upon academic qualification. Where a student is admitted at the Qualifying University

year level, a Major degree program is normally four years in length (i.e. Qualifying, First, Second, Third) and an Honours degree program is normally five years in length (i.e. Qualifying, First, Second, Third, Fourth). Where a student is admitted at the First year level, the degree program is reduced by one year, i.e. normally three years for a Major degree and four years for an Honours degree. Beyond First year, remaining degree requirements are determined by the total number of credits required for that particular degree program less those credits granted on transfer from previous post-secondary study.

It should be noted that students who are being considered for admission to the Qualifying University year level may, at the time of admission, receive credit for work completed at that level in the high school system. This is of particular importance if a student elects a Concurrent Studies Program or opts for Accelerated Progress (see below).

January Admissions

To accommodate the growing number of students who wish to enter university at mid-year, Carleton University has instituted a "January Admissions" program. All categories of students, including January high school graduates, Mature Matriculants, and individuals who completed high school at an earlier date, may take advantage of this opportunity.

The University has introduced a thirteen-week Spring term within the framework of the Winter session. It should be emphasized that this term ends at the same time as the regular Winter session's Second term, thus allowing students to compete on an equal basis for summer employment.

The maximum course load for students entering in January equals half of the normal course load allowable for a full academic year, i.e. two and a half courses for Arts and Science.

Students may combine courses from the Spring term with one or two Summer courses, thus completing a total of four to five courses prior to September and consequently leaving them eligible to enter the Second year of the program at that time.

Concurrent Studies

Concurrent Studies enables local high school students to begin their university studies at the First year level while completing their Grade 13 programs. Concurrent Studies is Carleton's response to the high school credit system and recognizes the fact that many students do not proceed from Grade 13 to university in a "lock-step" fashion. The intention of this feature is to facilitate the transition from secondary to post-secondary studies, thereby extending the "continuous progress" concept

which has been so well developed at the elementary and secondary levels.

Any student who has completed the Grade 12 diploma with a minimum 65% average in addition to one or more Level 5 (Grade 13) subjects may participate. At the time of admission, credit will be granted for those Level 5 courses graded 60% or better which are acceptable for the student's selected degree program. The concurrent program must then be completed in a twelve month period, at which time the requirements on admission will be adjusted to reflect the additional Level 5 work completed.

Note: Students must successfully complete six Level 5 courses in order to receive full credit for the Qualifying University year.

Accelerated Progress

Carleton will not consider Ontario Grade 12 graduates for admission to the First year, but the "Accelerated Progress" feature can achieve similar results for Qualifying University year students who perform at an above-average level. More specifically, any Qualifying University year student who, during his first two years or ten courses at the University, passes all his courses with a B- or 70% average, may have his program assessed for the purpose of reducing the number of courses required to graduate. The maximum reduction possible under this policy could result in a student obtaining a degree in three years beyond Grade 12.

For the Faculty of Engineering only, including the Schools of Architecture and Industrial Design, students who successfully meet the promotion requirements upon completion of one year of full-time studies, may apply for assessment of the remaining degree requirements under the Accelerated Progress Policy.

Because acceleration is based on a student's performance at Carleton, it is felt that this policy is more academically sound than direct entry to First year from Grade 12.

Only exceptional students should be interested in this policy of accelerated progress which is designed to enable very capable students to proceed to a degree at a rate commensurate with their ability in university work.

Qualifying University Year

This program is roughly equivalent to Ontario Grade 13 and is offered in the Faculty of Arts, the Faculty of Engineering and the Faculty of Science. Since all other undergraduate degree programs begin at the First year level, students interested in these programs must first complete an appropriate Qualifying University year program in either Arts, Engineering or Science (see Summary on pp. 31-34).

Certificate Programs

In addition to offering eight undergraduate degree programs, the admission requirements for which are stated on the following pages, Carleton offers two certificate programs as follows:

Certificate in Public Service Studies

Admission Requirements

Junior Matriculation. The cases of experienced applicants without Junior Matriculation will be considered on their merits and the completion of certain subjects at Carleton may be required before admission. Candidates may be admitted with advanced standing, but must complete at least five courses for the Certificate at Carleton University.

Refer to p. 66 for program details.

Certificate in the Teaching of English as a Second Language

Admission Requirements

The certificate program is intended for persons who have already completed a first degree in another subject, or a course of study in a teacher training college. Others with a strong academic background or with experience in the teaching of English as a second language may be admitted to the program with the permission of the Linguistics Department.

Refer to p.150 for program details.

High School Applicants

Ontario

The basic admission requirement is the completion of the Ontario Secondary School Graduation Diploma (Grade 12) with a minimum 65% average. Students who have successfully attained this level will be considered for admission to the Qualifying University year.

To be considered for admission to the First year, which is the usual level of entry, a student must successfully complete the Ontario Secondary School Honour Graduation Diploma (Grade 13) with a minimum 60% average. Students who have partially completed Grade 13 and who are not participating in the Concurrent Studies program (see above) will be considered for possible advanced standing at the Qualifying University year level. A later assessment might also be possible under the Accelerated Progress feature (see above).

Detailed admission requirements for each undergraduate degree program can be found in chart form on pp. 31-34.

Carleton University utilizes, for admission purposes, the credit system as defined by the Ministry of Education for Ontario. In calculating averages, the weighting factor assigned to a subject will be directly proportional to the credit value of that subject.

Quebec

Students from the Province of Quebec may apply for admission to Carleton University either upon completion of the Secondary V Certificate or after completing work towards the Collegial Diploma (see Quebec CEGEPs, p. 28).

Students applying on the basis of high school studies, will be considered for admission to the Qualifying University year as follows:

General Statement

The Quebec Secondary V Certificate, with a minimum 65% average and including six, two-unit, college preparatory subjects at the Secondary V level.

Individual Degree Program Requirements

Bachelor of Arts

Secondary V work to include two of: English; a language other than English; Mathematics (either Functions or Algebra and Geometry).

Bachelor of Engineering

Secondary V work to include: Mathematics (either Functions or Algebra and Geometry); Chemistry; Physics.

Bachelor of Science

Secondary V work to include: Mathematics (either Functions or Algebra and Geometry); two Natural or Life Sciences.

Students who have completed a Grade 12 program will be considered for admission to First year.

Other High School Systems

Although all high school applicants may be considered for admission to either the Qualifying University or First years, depending upon academic qualifications, individuals from foreign systems of education will be considered for admission to the Qualifying University year only if they are able to present sufficient evidence that their secondary school background is appropriate to this level of entry with respect to academic content and level of achievement.

Generally speaking, applicants must meet requirements for admission to a university in their own province or country.

The following certificates, recognized as approximately equivalent to the Ontario Secondary School Graduation Diploma (Grade 12), may be accepted to meet admission requirements to the Qualifying University year:

Quebec: The Secondary V Certificate.

Alberta, Manitoba, Newfoundland, Nova Scotia, Saskatchewan: Junior Matriculation (Grade 11).

British Columbia, New Brunswick: Junior Matriculation (Grade 12).

Prince Edward Island: High School Graduation (Grade 12).

United States: High School Graduation (Grade 12).

United Kingdom, West Indies, East and West Africa, Hong Kong: The General Certificate of Education (or equivalent) with satisfactory standing in five subjects at the Ordinary level (or equivalent).

Note: Students who achieve at a high level in their first ten courses at Carleton University may have their program assessed for a possible reduction in degree requirements (see Accelerated Progress, p. 26).

The following certificates recognized as approximately equivalent to the Ontario Secondary School Honour Graduation Diploma (Grade 13), may be accepted to meet admission requirements to the First year:

Alberta, Manitoba, Nova Scotia, Saskatchewan: Senior Matriculation (Grade 12).

United Kingdom, West Indies, East and West Africa, Hong Kong: The General Certificate of Education (or the equivalent) with satisfactory standing in five subjects at Ordinary Level and two suitable subjects at Advanced Level.

Special Requirements for Overseas Students

Proficiency in English

Since the instructional language of the University is English, applicants must be able to understand and be understood in English, both written and oral. Applicants whose mother tongue is a language other than English must clearly exhibit this ability either by the results of the English Language Proficiency Test of the University of Michigan or the Test of English as a Foreign Language (TOEFL) given by the College Entrance Examination Board.

Financial Statement

Evidence of financial solvency will be required of each applicant before final approval of his application will be considered.

Note: Current immigration laws do not normally permit foreign students to seek employment in Canada to assist themselves in paying any part of their education expenses. In addition, the University has no scholarships or financial assistance plans available for foreign students at the Undergraduate level.

Translation of Documents

Applicants from non-English speaking countries must arrange to submit Certified English Translations of their academic documents.

Transfers from Post-Secondary Institutions

Other Universities

Students applying from other recognized universities may be admitted with advanced standing if they are eligible to continue at the institution from which they wish to transfer.

An applicant who is attending or has attended institutions of post-secondary education must present:

1. *Official Certified Transcripts* of academic record mailed directly to this University by the registrars of the institutions attended;
2. in addition, applicants who have taken only one year of study past the secondary school level must submit an official transcript of high school marks mailed directly to this University by the principal of the high school concerned. Credit may be received for courses taken at other recognized degree-granting institutions:
 - (a) if courses are relevant to a student's proposed program; and
 - (b) if the appropriate department recommends that such courses be credited to student's program. Each application will be evaluated individually.

Students who apply for admission to an undergraduate degree program who already possess an undergraduate degree either from Carleton or another university are required to complete a minimum of one year's academic work at Carleton University as specified by the department in which the degree is to be taken in order to qualify for another undergraduate degree.

Ontario Colleges of Applied Arts and Technology (C.A.A.T.)

Students from Ontario Colleges of Applied Arts and Technology who present a minimum Second Class Honours standing will be considered for admission to the University and may receive advanced standing to a maximum of the equivalent of First year.

Assessments regarding admission and advanced standing will be based on the following guidelines:

1. Applicants who have achieved an overall Second Class standing or better or who have Second Class standing or better in the last two semesters in a three year C.A.A.T. program will be considered for admission with advanced standing to a maximum of five courses (equivalent to one year). The advanced standing would be granted according to the appropriateness of the C.A.A.T. program, the course concentration, and the achievement in relevant courses.
2. Applicants who have achieved an overall Second Class standing or better, or have Second Class standing or better in the last two semesters of a two year C.A.A.T. program will be considered for admission to First year of an appropriate program with no advanced standing.
3. Applicants who have completed two years of a three year C.A.A.T. program and achieved an overall Second Class standing or better, or have Second Class standing or better in the last two semesters, will be considered for admission to First year of an appropriate program with no advanced standing.
4. Applicants who have completed the first year of a three year C.A.A.T. program with an overall First Class standing will be considered for admission to First year of an appropriate University program.

Other students presenting an incomplete program normally will not be considered for admission to this University on the basis of that program. Such persons may enquire about possible alternatives if they are desirous of seeking admission to a Carleton University degree program at some future date.

Quebec CEGEPs

Students from Quebec CEGEPs who present a minimum Third Class Honours standing will be considered for admission to the University and may receive advanced standing to a maximum of the equivalent of First year.

Guidelines for First year

In general, students who have successfully completed the First year of the "General" or pre-university program (or the equivalent program) with minimum Third Class

Honours standing are eligible to be considered for admission to the First year.

Although specific subject requirements have been kept to a minimum, the following are considered necessary prerequisites for the degree program indicated:

Bachelor of Architecture: Mathematics; Physics.

Bachelor of Arts: None specified.

Bachelor of Commerce: Mathematics.

Bachelor of Engineering: Mathematics; Physics; Chemistry.

Bachelor of Industrial Design: Mathematics; Physics; Chemistry.

Bachelor of Journalism: Language other than English (French recommended).

Bachelor of Music: None specified.

Bachelor of Science: Mathematics; two experimental Sciences.

Students who have enrolled in the "General" program, but who have not successfully completed the First year or who have successfully completed the First year with an incorrect pattern of courses for an intended degree program here, will not normally be considered for admission.

Guidelines for Second Year

Students successfully completing two years of the "General" CEGEP program or the equivalent, with minimum Third Class Honours standing will be considered for admission and may receive advanced standing to a maximum of the equivalent of First Year.

It will be the responsibility of the appropriate Carleton department, school or faculty concerned to determine the advanced standing and the remaining requirements for a particular degree program. To ensure uniformity and equity, the acceptance/or non-acceptance of grades and courses will be at the discretion of the appropriate Faculty Committee on Admission and Studies, in consultation with the appropriate department, school, or faculty.

Once a student has enrolled in the Second year of the CEGEP program, he must meet the published standard for that level and cannot then be considered solely on the basis of his First year's academic work.

Note: Students who make application on the basis of Second year studies expecting advanced standing must submit detailed course descriptions upon request.

Mature and Special Admissions

Mature Matriculation

Persons who lack the normal entrance requirements as published in the University calendar but who are twenty-three years of age or over, prior to the session in which they wish to enrol, may receive consideration for admission to a degree program, either on a full-time or part-time basis.

Any individual who meets the age requirement is technically eligible to be considered for admission as a Mature Matriculant. This category is, however, designed for individuals who do not meet normal admission requirements but who would probably be successful in university studies. The successful completion of one or more courses as a Special student will normally be taken as sufficient proof of one's ability to succeed.

Mature Matriculants are normally admitted to the First year of an undergraduate degree program. Students who are seeking admission to either the Faculty of Science or the Faculty of Engineering (including the School of Architecture and Industrial Design), but who do not hold the necessary prerequisites, may be required to take Qualifying University year courses in addition to the regular program.

Applicants are required to submit proof of age with their application for admission.

Special students at Carleton University who meet the age requirement will normally be considered for admission as Mature Matriculants if:

- (a) they have obtained a grade of C – or better in at least one full course (or equivalent); and
- (b) are eligible to continue as Special Students.

Individuals contemplating Mature Matriculation are invited to seek advice at one of the following offices:

The Office of Admissions;
The Office of Continuing Education;
Faculty of Arts Registrar's Office
Any academic department appropriate to the student's interests.

Non-Canadian students are normally not considered for admission under the Mature Matriculation category.

Special Students

Special students may be admitted to degree study upon indicating, through academic achievement at Carleton, a reasonable probability of future academic success.

Normally, in the Faculty of Arts, a Special student will be admitted after passing at least four full courses with C- standing or higher in at least two full courses or equivalent.

Normally, in the Faculty of Science, a Special student will be admitted after passing at least four *approved* full courses with a C- standing or higher in at least two full courses or equivalent.

Note: Students who perform at a higher level may gain admission after fewer courses, i.e. an A- average on two successive full courses or a B- average on three successive full courses.

Special students seeking admission must meet the requirements within the previous six full courses preceding formal application for admission and may not present more than two supplemental or special supplemental examinations in meeting the requirements for admission.

Special students who meet the age requirement for Mature Matriculation will normally only be considered on this basis if they have obtained a grade of C- or better in at least one full course (or equivalent) and are eligible to continue as a Special student.

Admission Procedures

How to Apply

Prospective students, when requesting an application directly from the University, should provide a complete outline of their academic background.

All students planning to enrol on a full-time basis in either the Qualifying University or First year of a degree program, must apply through the Ontario Universities' Application Centre as follows:

1. Current Ontario Grade 12 and Grade 13 students should obtain a preprinted application form from their high school and arrange to have it submitted to the Application Centre.
2. Other applicants to a full-time Qualifying University or First year program should obtain a common application form from the Office of Admissions, Carleton University, and submit this completed form to the Application Centre.
3. All other applicants (i.e. part-time, transfers beyond the First year, all former Carleton students) should request a Carleton application form from the Office of Admissions. This completed form should be submitted directly to Carleton University.

Suggested Application Dates

The following are application dates for the 1975 admissions year:

March 1: Candidates applying for Early Admission.

April 1: Candidates whose documents originate outside Canada.

July 1: Applicants for transfer from other universities and colleges.

July 1: Candidates applying as Mature Matriculants.

August 1: High school applicants.

August 15: Candidates applying for admission on the basis of work completed as Special students.

December 15: Candidates apply for either the Second term or the Spring term of the 1975-76 Winter session.

Early Admission

Offers of Early Admission will be based on the previous year final and current year interim marks.

For Ontario high school applicants, offers will not be released before May 30. Out-of-province applicants will receive an offer of admission as soon as interim marks are received by the University and the assessment completed.

Carleton reserves the right to withdraw offers of admission for failure to complete the school year satisfactorily. In addition, applicants are advised that although they may receive an offer of admission based on interim marks, final marks, when they are received, will become part of the University's admission record.

Summary of Undergraduate Degree Programs

Architecture

Degree
B.Arch.

Length of Course from Junior Matriculation
6 years

Length of Course from Senior Matriculation
5 years

Annual Tuition
\$742.00

Admission Requirements, Qualifying University Year
As there is no Qualifying University year in Architecture, students must complete this level of study in high school or by registering in either Qualifying University year Science or Engineering in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Science or for Qualifying University year Engineering as stated elsewhere in this chart.

Admission Requirements, First Year
The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average and including Functions, Calculus and Physics; or the successful completion of Qualifying University year with an appropriate course pattern

Arts

Degrees
B.A.
B.A. (Honours)

Length of Course from Junior Matriculation
4 years
5 years for Honours

Length of Course from Senior Matriculation
3 years
4 years for Honours

Annual Tuition
\$682.00
(St. Patrick's College, \$687.50)

Admission Requirements, Qualifying University Year
The Ontario Secondary School Graduation Diploma with a minimum 65% average and including two of the following subject areas at level 4: English, a language other than English, Mathematics (a majority of the credits presented must be in the advanced or enriched phases)

Admission Requirements, First Year
The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average; or the successful completion of Qualifying University year Arts

For Honours: 65% on the Honour Graduation Diploma, or the equivalent

For a Major in Biology or Mathematics, Functions and Calculus, or the equivalent (Mathematics 69.010) must be included; for Economics it is recommended that they be included. Students intending to major in Biology should in addition present Chemistry

Commerce

Degree

B.Com. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Annual Tuition

\$682.00

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Commerce, students must complete this level of study either in high school or by registering in Qualifying University year Arts in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average, including Functions and Calculus; or the successful completion of Qualifying University year, with an appropriate course pattern, including Mathematics 69.010.

Engineering

Degree

B.Eng.

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Annual Tuition

\$682.00—Qualifying year

\$742.00—First to Fourth years

Admission Requirements, Qualifying University Year

The Ontario Secondary School Graduation Diploma with a minimum 65% average and including an appropriate preparation in Mathematics, Chemistry and Physics (a majority of the credits presented must be in advanced or enriched phases)

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus, Chemistry and Physics. A student unable to meet the specific course requirements but otherwise admissible to Carleton University may be admitted to the Faculty of Engineering, but will be required to satisfy the outstanding requirements at the Qualifying University year level

Industrial Design

Degree
B.I.D.

Length of Course from Junior Matriculation
5 years

Length of Course from Senior Matriculation
4 years

Annual Tuition
\$742.00

Admission Requirements, Qualifying University Year
As there is no Qualifying University year in Industrial Design, students must complete this level of study in high school or by registering in either Qualifying University year Science or Engineering in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Science or for Qualifying University year Engineering as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus, Chemistry and Physics. A student unable to meet the specific course requirements but otherwise admissible to Carleton University may be admitted to the Faculty of Engineering, but will be required to satisfy the outstanding requirements at the Qualifying University year level

Journalism

Degree
B.J. (Honours)

Length of Course from Junior Matriculation
5 years

Length of Course from Senior Matriculation
4 years

Annual Tuition
\$682.00

Admission Requirements, Qualifying University Year
As there is no Qualifying University year in Journalism, students must complete this level of study either in high school or by registering in Qualifying University year Arts in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average or the successful completion of Qualifying University year—including a language other than English (French is recommended)

Music

Degree

B.Mus. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Annual Tuition\$682.00

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Music, students must complete this level of study either in high school or by registering in Qualifying University year Arts. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average; or the successful completion of Qualifying University year

Science

Degrees

B.Sc.

B.Sc. (Honours)

Length of Course from Junior Matriculation

4 years

5 years for Honours

Length of Course from Senior Matriculation

3 years

4 years for Honours

Annual Tuition\$682.00

Admission Requirements, Qualifying University Year

The Ontario Secondary School Graduation Diploma with a minimum 65% average and including an appropriate preparation in Mathematics, Chemistry and Physics (a majority of the credits presented must be in advanced or enriched phases)

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average, and including: Functions, Calculus and two Sciences; or the successful completion of Qualifying University year including Mathematics 69.010 and two Sciences

For Honours: 65% on the Honour Graduation Diploma, or the equivalent

The Board of Governors reserves the right to amend its published schedule of fees without notice.

Requirements

Every student attending the University is required to register in his courses with the Registrar's Office of his faculty at the time designated for the session, and to inform this office of any changes in registration.

Students who do not register at times designated for their session will be charged a late registration fee. (see p. 44.)

A student's registration shall not be considered to be complete until he has made arrangements for the discharge of his financial responsibilities to the University in accordance with the University policies.

No student will be permitted to register until all outstanding accounts due to the University have been paid. (See Delinquent Accounts, p. 45.)

Course Selection

A student proceeding to a degree, or certificate must select his courses according to the requirements set by his faculty or school, and Major department.

Students planning to undertake professional training beyond their undergraduate studies should ensure that their programs meet the requirements of admission to their intended school or faculty.

Auditing Courses

A student may, with the instructor's consent, register to audit a course (i.e. attend without receiving credit), in addition to those being taken for credit.

Full-time students may register to audit a course without an additional fee; all others must pay the regular course fee.

Students who enrol to audit must so indicate on their registration form or course-add form. The last date for change from audit to credit or from credit to audit will be the last date for course changes.

Course Changes

Changes of course or changes of section within a course must be applied for at the appropriate Faculty Registrar's Office. Changes must be made by the dates designated in the Calendar under the Academic Year and must be approved by the department in which the course is

offered and by the Major department. Changes of course include changes of status from credit to audit or audit to credit. (See Fees pp. 44-46.)

Program Changes

Students wishing to change faculty or school, or change Majors, or change between Major and Honours, must apply to make such changes. Applications should be made at the Registrar's Office of the faculty in which the student is registered, after consultation with the faculty, school or departments concerned.

Changes in Major may be effected at any time of the year.

Students wishing to change from a Major to an Honours program must submit an application on or before November 15.

The following deadlines have been approved for Degree programs:

Winter Session

1. First term: Fourteen days prior to the last date for late registration.
2. Second term: On or before the Friday of the first week of lectures.

Summer Session

On or before the first day of Evening division classes.

Withdrawal

Students wishing to withdraw from a course or from the University, must apply to their Faculty Registrar's Office on the designated form, or by letter. The official withdrawal date will be the day on which application is received in the Faculty Registrar's Office. Students withdrawing from the University must return their identity card, any refund of fees being calculated from the date of its receipt. (See Fees, Withdrawal and Refund p. 45.)

A student who withdraws from a course or from the University after the withdrawal dates shown in the Calendar for the Academic Year (see pp. 7-9), will be shown as absent from the final examinations, will not be granted supplemental privileges or a refund of fees, and may not be reinstated in that course.

Withdrawals either before or after the designated dates may affect promotion status as prescribed by faculty

regulations. Students should consult their Faculty Registrar's Office for guidance.

A student who withdraws from a course will retain no credit for any part of that course.

Proficiency in English

(Regulations supplementary to Admission Requirements)

All students are required to be proficient in the English language. In any year of his course, an instructor may refer a student to the Department of Linguistics, which will decide whether he must receive additional tuition.

University of Ottawa–Carleton Visiting Undergraduate Students

A full-time undergraduate student, in his Second or higher year may, with departmental permission, take the equivalent of one course credit per winter session at the University of Ottawa without additional fee. Interested students should enquire at their Faculty Registrar's Office.

General

To gain standing in a course, a student must meet the course requirements for attendance, term work, and the writing of examinations.

Each instructor will inform his class early in the session of the relation of attendance to course grades, and whether attendance records will be kept.

The Senate may at any time require a student to withdraw from the University if his conduct, attendance, work, or progress is deemed unsatisfactory.

In Arts and Science it is the responsibility of the Major department, in Engineering, Architecture and Industrial Design it is the responsibility of the Faculty or School to ensure that a student progresses in an orderly manner, according to faculty, school and departmental regulations.

Standing in Courses

Standing in courses will be determined by departments.

Standing in courses will be shown by alphabetical grades. The system of grades used, with the corresponding grade points, is as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

For the purpose of interpreting letter grades, the percentage equivalents are as follows:

A+ 90-100	B+ 77-79
A 85-89	B+ 73-76
A- 80-84	B- 70-72
C+ 67-69	D+ 57-59
C 63-66	D 53-56
C- 60-62	D- 50-52

Notations* to represent special circumstances are as follows:

Faculty modifications and additions to the following are given under separate faculty listings.

Aeg

Pass standing granted although absent from final examinations. Aegrotat standing is granted only by the appro-

priate faculty committee on admission and studies, after consultation with the instructor, in response to a student's application which meets the stipulations for examinations below.

Pass

Pass standing in a supplemental examination.

The following categories of standing are without academic credit:

F

Failure. No academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of incomplete term work or an unacceptably low mark in the final examination. No academic credit.

Abs

Absent from final examination or withdrawal after deadline. No supplemental privileges. No academic credit.

Wdn

Withdrawn in good standing. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to their appropriate faculty committee on admission and studies for deferred examination privileges.

IP

In progress.

* Note: These notations are not necessarily applicable to graduate students. See Calendar for Graduate Studies and Research.

Promotion

The conditions under which a full-time or part-time undergraduate student may be promoted are governed by faculty regulations and are shown in the Calendar entries for the various faculties and schools.

Probation

The conditions under which students may incur or be relieved of probationary status are shown in the Calendar entries for faculties and schools.

Graduation

Undergraduate students are required to meet the graduation standards laid down by their faculty or school.

Students expecting to graduate in the spring must apply for graduation at their Faculty Registrar's Office by February 1, and those expecting to graduate in the fall, by September 1.

Mid-Term Examinations

Mid-term examinations are held in Qualifying and First year full courses at the discretion of each faculty or school. As required by instructors, mid-term examinations may also be held in senior courses. Scheduled dates are as shown in the Calendar for the Academic Year (see pp. 7-9). Mid-year examinations for classes held at night may be scheduled during the day and vice versa.

Final Examinations

Final examinations for each session are scheduled at the times shown in the Calendar for the Academic Year (see pp. 7-9).

Final examinations for classes held at night may be scheduled during the day and vice versa.

A student who is absent from a final examination without an acceptable reason will not be granted supplemental privileges.

Special Final Examinations

A student who is unable to write a final examination because of illness or other circumstances beyond his control, or whose performance on the examination has been impaired by such circumstances, may, on application, be granted permission to write a special final examination. Such applications must:

1. be made in writing to the appropriate Faculty Registrar's Office not later than one week after the date of the examination; and
2. be fully supported in the cases of illness by a medical certificate or by appropriate documents in other cases.

Aegrotat standing will be considered for applicants for special final examinations, but will be granted only in exceptional circumstances and if term work has been of high quality

Special final examinations (deferred final examinations) are written at the time of the supplementals for the session concerned.

Standing in special final examinations is shown by alphabetical grades. A student granted aegrotat standing may apply for permission to write a special final examination, but may write only at the next supplemental examination period.

Supplemental Examinations

Supplemental privileges may be granted in courses where the final grade is F and under conditions defined by the faculties or schools.

A student may not write a supplemental in a course graded FNS or Abs.

If a supplemental examination is failed, the student must repeat the course before writing another examination in it.

Application to write supplemental examinations must be made at the appropriate Faculty Registrar's Office by the designated date. (See Examination Fees p. 45.)

Supplemental examinations must be written at the next supplemental examination period, except for the School of Architecture.

Students may apply to write supplemental examinations at educational institutions outside Ottawa.

Special Supplemental Examinations

Examinations written to raise a grade in courses already passed are called special supplemental examinations. (See Examination Fees p. 45.)

Special supplementals are graded by the alphabetical scale, and the grade obtained supersedes the grade of the final examinations.

A special supplemental in a course may be written only once, and at the next scheduled examination period, with the exception of Architecture. (See p. 294 for regulations regarding Architecture.)

The grade assigned a special supplemental will be based on the whole year's work, including the examination.

Students should note limitations on supplemental privileges under individual faculty regulations.

Review of Grades

Students are entitled to review of a final grade. Those wishing to receive such a review should enquire at their Faculty Registrar's Office, after which they may wish to make a formal application for this review. Applications must be filed with the appropriate Faculty Registrar's Office within fourteen days of the official release of the grade.

Requests for review are dealt with by the departmental chairmen in consultation with members of the staff.

The fee for review is \$10 per examination, which is refundable if the grade is raised. Students awaiting the outcome of a review must still apply for supplemental examinations by the prescribed deadline.

Release of Grades

Official final grades are released only by the Registrar. Reports are mailed as soon as possible after release has been authorized.

Registrarial Services

All registrarial services for Special students are provided by the Office of Continuing Education, Room 302, Administration Building, 231-6660.

General

Special students are those registering in degree-credit courses without having been formally admitted to the University.

Special students may take courses to qualify for admission or readmission, to improve their professional or vocational qualifications, for transfer credit towards a degree program elsewhere, or for personal interest.

Special students enrol in the same courses as students in degree programs and are permitted to take classes in both the Day and Evening divisions.

Admission Status

Courses completed by a Special student will not be credited towards a degree program until formal application for admission is made and the student is officially admitted to the University as an undergraduate (either part-time or full-time).

Special students may be admitted to degree study upon indicating, through academic achievement at Carleton, a reasonable probability of future academic success.

Normally, in the Faculty of Arts, a Special student will be admitted after passing at least four full courses with a C- standing or higher in at least two full courses or equivalent.

Normally, in the Faculty of Science, a Special student will be admitted after passing at least four *approved* full courses with a C- standing or higher in at least two full courses or equivalent.

Special students seeking admission who have completed *more* than four courses: (a) must meet the requirements within the previous six full courses preceding formal application for admission; and (b) may not present more than two supplemental or special supplemental examinations in meeting the requirements for admission.

The number of courses required for admission to a degree program may be reduced if the Special student is able to present a sufficiently higher grade average. Thus, a student who obtains a B- grade average or better in three successive courses or A- grade average

in two successive courses is encouraged to make formal application for admission.

For a person with some university experience (or the equivalent), the number of courses required for admission to degree study may differ from that indicated above. Advice in this regard may be obtained from the Admissions Office upon formal application.

A student admitted to an undergraduate degree program will normally receive retroactive credit standing in courses successfully completed at Carleton as a Special student.

Special students intending to pursue a degree program in the Faculty of Science, should note that, upon admission, credit may be granted for not more than seven full courses, five of which must meet the First year promotion requirements.

Admission as a Mature Matriculant

Persons who lack the normal entrance requirements as published in the Undergraduate Calendar but who are twenty-three years of age or over, prior to the session in which they wish to enrol, may receive consideration for admission to a degree program.

Any individual who meets the age requirement is technically eligible to be considered for admission as a Mature Matriculant. This category, however, is designed for those individuals who do not meet normal admission requirements but who would probably be successful in university studies.

Mature Matriculants are normally admitted to the First year of an undergraduate degree program. Students who are seeking admission to either the Faculty of Science or the Faculty of Engineering, but who do not hold the necessary prerequisites, may be required to take Qualifying University year courses in addition to the regular program.

All applicants are required to submit proof of age with their application for admission.

Special students who meet the age requirement will normally be considered for admission as Mature Matriculants if, and only if: (a) they have obtained a grade of C- or better in at least one full course (or equivalent); and (b) are eligible to continue as a Special student.

Eligibility to Register

Returning Special students must pass three of their previous five full courses (or equivalent) with a C-

standing or higher in at least one full course (or equivalent) to be eligible to receive permission for further registration.

Without documentation to the contrary, a grade of *Abs* (Absent) is judged equivalent to a grade of *FNS* (Failure, no supplemental privileges) for the purpose of determining eligibility to continue as a Special student.

Course Load

Special students may enrol in a maximum of two full courses (or equivalent) per academic session.

In exceptional circumstances, a Special student may enrol in three full courses (or equivalent) in the winter session provided permission is first obtained from the Office of Continuing Education and a C average has been obtained in a minimum of two full courses (or equivalent) completed in the previous session attended.

Special students may enrol in four or five full courses provided any of the following conditions prevail:

1. the student is enrolled full-time in a degree program at another institution and can present a Letter of Permission authorized by an appropriate official of that institution; or
2. the student holds an undergraduate degree from a recognized institution and wishes to pursue further study for professional development or in preparation for entry into graduate study; or
3. the student, on the recommendation of a department, has to upgrade undergraduate deficiencies prior to consideration for admission to a Carleton graduate program. Such students also require the permission of the Faculty of Graduate Studies and are advised to consult the Graduate Studies and Research Calendar.

Course Change and Course Withdrawal

Special students changing their course or courses or withdrawing from a course or from the University must use the appropriate form provided by the Office of Continuing Education.

Course changes must be made by the dates designated in the Calendar under the Academic Year and must be approved by the Department in which the course is offered. Changes of course include changes of status from credit to audit or audit to credit, as well as changes in course section.

The official withdrawal or change date will be the day on which the completed form is received in the Office of Continuing Education.

The amount of any refund is calculated according to a fixed refund schedule determined by the Business Office, from the date the completed form is received.

Students withdrawing from the University must return their identity card, any refund being calculated from the date of its receipt.

A Special student who does not formally withdraw from a course and who fails to write the final examination will be graded *Abs* (Absent), or *FNS* (Failure no supplemental) if term work is incomplete, will not be granted supplemental privileges, and will not be allowed remission or refund of fees.

A Special student who withdraws from a course will retain no credit for any part of that course.

Course Selection

Persons wishing to be admitted eventually to a degree program are advised to note the specific faculty requirements for First year students as listed in this calendar. Special students who have not completed Senior Matriculation or equivalent standing may have to upgrade by enrolling in courses at the Qualifying University year level.

Special students are strongly encouraged to consult directly with departments when selecting specific courses of study.

Supplemental and Special Examination Privileges

A Special student registered in one, two or three courses, who fails only one course, may write one supplemental. Supplemental privileges will not be granted to students who fail more than one of these courses.

A Special student registered in four courses may write one supplemental and one special supplemental only, or two special supplementals.

A Special student registered in five or more courses may write two supplementals or two special supplementals.

Supplemental examinations written by Special students will be graded according to the supplemental regulations of the faculty in which the course is given.

Supplemental privileges will not be granted to a full-time Special student who does not pass at least three courses in the spring.

A Special student who wishes eventually to enrol in a degree program of a faculty at Carleton University is strongly encouraged to pay particular attention to the supplemental examination regulations for that faculty.

Special supplementals are more commonly referred to as "grade raising" examinations.

Special students are eligible for special final examinations (deferred finals) under the conditions indicated on p. 39.

Special students must make application for supplemental and special examinations at the Office of Continuing Education by the published deadlines.

Appeals

A Special student has the right to appeal any decision relating to the application or interpretation of academic regulations made by the Office of Continuing Education.

Appeals must be made in writing and should be submitted to the Secretary, Special Student Policy and Appeals Committee, c/o Office of Continuing Education, Administration Building, Carleton University.

Transfer Credits to Another University

Students who wish to attend Carleton to receive credits toward a degree program taken elsewhere are eligible to register at Carleton as Special students. Such students who wish to exceed the normal course load or attend full-time should write or consult directly with the Records Officer/Counsellor, Office of Continuing Education.

Academic Information Service

The Office of Continuing Education is equipped to offer information and advice to Special students who are currently registered and to prospective Special students. Appointments may be arranged by telephoning 231-6660. Evening appointments are available.

Financial Assistance

Special students interested in obtaining financial assistance are advised to contact the Student Awards Office at 231-3735. At the time of publication, it appeared probable that the Ministry of Colleges and Universities would continue its loan program for part-time students for the 1975-76 academic year. Special students are eligible to take advantage of this program or any other financial aid program for part-time students.

Fees

Note

Because the Calendar is published several months in advance of the beginning of the academic year, the University reserves the right to change fees without notice.

Undergraduate Tuition Fees

The annual composite fee includes tuition, Students' Association, Athletics, Health Services and University Centre fees, and where applicable, laboratory, graduation, and summer survey camp fees.

Fees for Full-Time Students

(Four or more full courses)

Tuition

Qualifying Year (all programs)	
Arts, Journalism, Music,	\$ 580.00
Commerce, Science, and Special students	\$ 580.00
Engineering, Architecture, Industrial Design	640.00

Miscellaneous Fees

In addition to the tuition fee above, full-time students except those registered in St. Patrick's College, will be assessed the following compulsory miscellaneous fees.

Students' Association	\$ 21.00
Athletics	50.00
Health and Counselling	15.00
University Centre	16.00

Total \$ 102.00

For St. Patrick's College

Students' Association	\$ 26.50
Athletics	50.00
Health and Counselling	15.00
University Centre	16.00

Total \$ 107.50

Fees for Part-time Students

(Fees per full course for students, except those registered in St. Patrick's College, taking fewer than four full courses)

Tuition	\$ 113.20
Students' Association	4.20
Athletics	10.00
Health and Counselling	2.50
University Centre	3.20

Total \$ 133.10

For St. Patrick's College

Tuition	\$ 113.20
Students' Association	2.00
Athletics	10.00
Health and Counselling	2.50
University Centre	3.20

Total \$ 130.90

Students transferring from a First term half course to a Second term half course will be given credit for the unexpired portion of the First term half course and charged full fee for the Second term half course.

Late Registration Fees

Full-time students

\$10 first week after the registration period

\$15 second week after the registration period

Part-time students

\$5 (per full course) after the registration period

Method of Fee Payments

Fees may be paid in accordance with either of the following plans.

1. Payment in full at the time of registration.

2. Payment in two installments:

(a) at registration, 1/2 of the total tuition fee plus all miscellaneous fees plus a deferred payment fee of \$.50 per half course (4 or more courses \$5.00);

(b) at or before January 15, the remaining half of the total tuition fee.

Scholarships, bursaries, and loans administered by the University shall be applied first to fees provided this is not contrary to the terms of the award.

Personal cheques will be accepted for payment of accounts but the University reserves the right to cancel the use of this method by any student if it is abused. A service charge of \$5.00 will be made for each cheque returned to the University as non-negotiable for any reason. Students are requested to have their own cheque forms available when payments are made.

A statement of tuition fees paid for taxation purposes may be obtained upon application to the Business Office in February, 1976.

Overdue Accounts

Fees are due and payable at the time of registration. However, students may be permitted to select a payment program, in which case the last payment due-date is January 15. Should a student fail to complete the payments as arranged at registration, or fail to make satisfactory arrangements for the discharge of fees or other outstanding amounts by the last payment due-date, the University reserves the right to cancel the student's registration. All charges and outstanding fees accrued to the date of cancellation will remain due and payable on the student's account.

Withdrawal and Refund

See also pp. 35-36.

The composite fee for full-time students is a charge for four full courses or more. No charge is made for the fifth or any additional courses; conversely, no refund will arise as a result of withdrawal from a course by a full-time student unless the change alters his status from full-time to part-time.

Students who withdraw from a course, or from the University, are required to notify their Faculty Registrar in writing, or fill out the appropriate forms in the Faculty Registrar's Office. Students who withdraw from the University must return their identity cards to the appropriate Faculty Registrar's Office immediately. Refunds will be calculated by the date of receipt of the card.

A refund of the composite fee less a registration charge calculated at the rate of \$5.00 per half course for part-time students and \$50.00 for full-time students may be made for withdrawals before the last date for late registration in the First term. After the last date for late registration, the tuition portion of the composite fee less the registration charge is amortized over the period from the first day of classes to the last date for withdrawal with partial refund.

A detailed schedule of refund credits is available at the Business Office.

Miscellaneous Fees and Deferred payment fees are not refundable.

The appropriate refund credit will be applied to the student's account and any amounts due at that time will be offset before a cash refund is prepared.

Following are the last dates for withdrawal with partial refund of fees; no application for withdrawal and refund will be considered if received after these dates:

1975 summer session

See p. 7.

1975-76 winter session

October 24, 1975 First term half courses

February 13, 1976 all other courses

Residence Fees

See pp. 18-19.

Examination Fees

1. Supplemental and grade-raising special examination fees are charged on a per paper basis. The fee, when the examination is written at Carleton University, is \$10.00 per paper; when the examination is written at an educational centre other than Carleton University, with permission, \$20.00 per paper.

2. Examination Fees are non-refundable.

Transcript Fees

All students are entitled to two free transcripts. After these have been issued the fee is \$1.00 for the first, 50 cents for the second and 25 cents for each additional copy at any one time of ordering.

Locker Fees

A fee of \$2.00 is charged for the use of locker space. Lockers are allocated on a first-come first-serve basis and it may be necessary to share a locker with another student. A refund of locker fees will be made only up to the last date for late registration.

Deposit—Gowns and Hoods

At each convocation the University makes available for graduating students appropriate academic regalia. To obtain this regalia students are required to pay a \$25.00 deposit which is refundable when the regalia is returned.

Delinquent Accounts

Registration shall not be complete until a satisfactory arrangement has been made for the payment of fees. It

shall remain incomplete until the student's financial obligations to the University have been paid in full in accordance with arrangements made.

When examination results are ready for publication, if a student owes the University on any account his academic file will be sealed. He will not be permitted to register again until the account has been paid in full by cash or certified cheque.

Parking

Permission to park on the campus is granted for a fee to students and others associated with the University, but this permission is conditional upon co-operation in the observance of the regulations. Infractions will be penalized, and, under certain circumstances, cars will be towed away at the owner's risk and expense.

In this, as in other respects, examination grades will be withheld from students owing sums of money to the University. Unless cause can be shown, the third infraction may lead to withdrawal of parking privileges. The University accepts no responsibility for cars or their contents parked or operated on the campus. The regulations related thereto are available in the Traffic and Parking Office. Students and staff who bring cars to the campus are expected to make themselves familiar with these regulations. Parking lots are indicated on the map at the back of the Calendar.

Library Regulations

The Library is governed by regulations approved by Senate which appear in the *Guide to the University Library*, published annually by the Library. Copies are available on request.

As a condition of use of the Library all users must submit books, brief cases, bags, etc. for inspection at the exit, if requested to do so. Fines are charged for overdue books, and as noted under "Delinquent Accounts" examination grades and transcripts will be withheld from students owing money to the University.

Health Regulations

Medical insurance is compulsory for all full-time students.

All Ontario students should be covered by OHIP.

Students whose home residence is outside Ontario should have coverage under their provincial plan.

Students from outside Canada should apply for OHIP. This application should be made as early as possible because there is a delay in coverage after application.

Students who object to the foregoing requirements on conscientious grounds must consult the University physician, and provide a written statement giving the basis for such objection.

Tuberculosis Control

Every student requires a tuberculin skin test, or chest X-ray if tuberculin positive. These are required to be repeated on a yearly basis while the student is attending university.

Academic Dress

The academic dress of Carleton University is a compromise between the style of hoods outlined in the American Intercollegiate Code and the dress of the ancient foundations of Britain and America. The Bachelor's hood is of simple or Oxford shape, made of black stuff and lined with two chevrons of red and black on a silver field.

The Master's hood, made of black silk, is again of the simple shape but open to show more of the lining. The Doctor of Philosophy hood is again made of silk, but completely opened to show the lining and provided with a purple border.

The border of the Bachelor's or Master's hood denotes the degree granted, according to the following colour combinations: *Architecture*, cerise; *Arts*, white; *Commerce*, camel brown; *Engineering*, orange; *Journalism*, white with a black cord sewn slightly in from the lower border; *Music*, Venetian pink; *Science*, golden yellow; *Social Work*, cream.

The Bachelor's gown, to be worn with the above hoods, is of full length, made of black stuff, with a gathered yoke behind, and long open-fronted sleeves. The Master's gown is of full style, made of black silk or rayon, with full gathered yoke behind and closed sleeves with an opening at the elbows. The Doctoral gown is the same style as the Master's, made of fine royal blue cloth with facings of a light blue silk.

The gown of the Honorary Doctor of Laws, Literature, Science and Engineering is a blue robe with bell-shaped sleeves, made of fine royal blue cloth with facings and sleeves in light blue silk. The hood is made of the same material as the gown, has the same lining as that for the degrees granted by examination, and is bordered with dark mauve for the degree of Doctor of Laws, vibrant blue for the degree of Doctor of Literature, red for the degree of Doctor of Science and orange for the degree of Doctor of Engineering.

Faculty of Arts
Divisions I and II

School of Commerce

School of Journalism

School of Public Administration

Institute of Soviet and East
European Studies

Officers of the Faculty

Dean, Division I
M. LaFrance

Assistant to the Dean
E.P. Fitzgerald

Dean, Division II
R.A. Wendt

Assistant to the Dean
P.C. Findlay

Divisions of the Faculty

Division I

Art History	Italian
Canadian Studies	Journalism
Classics	Linguistics
Comparative Literature	Music
English	Philosophy
French	Religion
German	Russian
History	Spanish

Division II

Accounting	Political Science
Anthropology	Psychology
Commerce	Public Administration
Economics	Sociology
Geography	Soviet and East
International Affairs	European Studies
Law	

St. Patrick's College Division

Dean
H.A. MacDougall

Vice-Dean
W. Walther

St. Patrick's College constitutes a division of the Faculty of Arts offering three-year Major and General Bachelor of Arts programs. A separate section outlining these programs and regulations pertaining to them begins on p. 217. With the permission of the Major department, students registered in departments of Divisions I or II may take courses at St. Patrick's College.

Degree Programs

The Faculty of Arts offers five degree programs which may be pursued on a full or part-time basis.

The Bachelor of Arts three-year Major program is designed to provide opportunity for a liberal education, including specialization in one subject of study called the "Major". A Combined Major program in two subjects may be taken with the consent of the departments concerned.

The four-year program leading to the degree of Bachelor of Arts with Honours is designed for students who wish more rigorous and extensive studies in their chosen discipline. Combined Honours programs are offered in a number of areas. The Honours degree is essential as a qualification in certain fields of employment and is a most desirable preparation for those intending to pursue graduate studies or professional training. Students who are considering high school teaching as a career are urged to consider the Honours degree.

The School of Commerce offers a Bachelor of Commerce Honours degree, the School of Journalism offers a Bachelor of Journalism Honours degree and the Department of Music offers a Bachelor of Music Honours degree. Course requirements are outlined in the entries for the School or Department. Students in these programs are subject to Faculty of Arts regulations regarding promotion, probation, failure and examinations.

Some non-degree programs are offered in the Faculty of Arts. The Department of Linguistics offers a Certificate in the Teaching of English as a Second Language and the School of Public Administration offers a variety of programs.

Part-Time Studies

All students in the Faculty of Arts are eligible to register on a part-time basis in either Day or Evening or Summer courses.

Regulations regarding course load, promotion, examinations, transfer of credit and graduation are to be found in the following pages.

Part-time students should note that the degree must be completed within seven years after promotion to the Course-Credit System. (See p. 56.)

Part-time students wishing to make inquiries regarding their academic program should consult with the Major or Honours department. Students who have not yet

declared a Major should contact the Arts Faculty Registrar's Office.

Advice regarding University and Faculty regulations may be obtained from the Arts Faculty Registrar's Office, Room 312, Paterson Hall. Day or Evening appointments may be arranged with a counsellor, telephone 231-6690.

Admission Requirements

Qualifying University Year

The Ontario Secondary School Graduation Diploma with a minimum 65% average and including two of the following subject areas at level 4: English, a language other than English, Mathematics. A majority of the credits presented must be in the advanced or enriched phases.

First Year

B.A., B.A. Honours, B.Mus.

1. Completion of Qualifying University year; or
2. The Ontario Secondary School Honours Graduation Diploma with a minimum 60% average.

A minimum 65% average is required for Honours programs.

For a Major in Biology or Mathematics, Functions and Calculus must be included. For a Major in Economics, it is recommended that Functions and Calculus be included. Students intending to Major in Biology should, in addition, present Chemistry.

B.J.

Students seeking admission to the Bachelor of Journalism Honours degree should consult the Admission requirements outlined in the School of Journalism section of the Calendar.

B.Com.

Students seeking admission to the Bachelor of Commerce Honours degree should consult the admission requirements outlined in the School of Commerce section of this Calendar.

Students from outside the Province of Ontario and students seeking admission to Second or higher years should consult the general regulations on admission, pp. 25-34.

Course Requirements

Qualifying University Year

A Qualifying University year is offered for students who have successfully completed the requirements for the Ontario Secondary School Graduation Diploma (Grade 12) or the equivalent. Students who intend to apply to the Schools of Commerce or Journalism or Music should enter Qualifying University year in Arts and apply for transfer to the appropriate School upon successful completion of Qualifying University year.

Five courses must be selected as follows:

1. Two of English 18.010, Mathematics 69.010, or a language other than English.

2. Three options from the following list of courses, or from the list of courses open to First year students for which the student is qualified (see p. 53.)

Biology 61.100 or 61.101,
Chemistry 65.010,
English 18.010,
French 20.010,
Geography 45.101,
Geology 67.100, 67.111★, 67.112★,
German 22.015, 22.016 or 22.017,
Greek 15.015,
History 24.014,
Italian 26.015,
Latin 16.015,
Mathematics 69.010, or 69.011,
Music 30.060, 30.100,
Physics 75.010,
Portuguese 38.016,
Russian 36.015,
Spanish 38.015,
Ukrainian 36.016.

For students intending to Major in Biology, Commerce or Economics, Mathematics 69.010 is required. For students intending to enter the School of Journalism, a language other than English is required.

First Year

For the First year the student will be expected to design his program of five courses from the list which follows.

Many departments have prerequisite courses which must be taken in the First year if a student wishes to continue in a particular subject. Normally students are advised not to take more than two courses from the same discipline in selecting courses in the First year.

While the University will make every effort to allow every entering student to enrol in a program of his choice, it

is recognized that enrolments may have to be limited in certain of the more popular First year subjects.

Courses Open to First Year Students

Note: Courses marked * are for Major and Honours students. Courses Marked ** may be taken with special departmental approval.

Accounting

- 41.100 An Introduction to Accounting*
- 41.101 ★ Principles of Financial Accounting
- 41.102 ★ Management Accounting

Anthropology

See Sociology-Anthropology

Art History

- 11.100 A Survey of the History of Art
- 11.110 An Introduction to Architectural History
- 11.200 ★ An Introduction to Canadian Art
- 11.210 ★ Ancient Art
- 11.220 ★ Western Medieval Art
- 11.230 ★ Renaissance Art
- 11.240 ★ Mannerist and Baroque Art
- 11.250 ★ Rococo and Romantic Art
- 11.260 ★ Modern Art

Biology

- 61.100 General Biology
- 61.101 Introductory General Biology
- 61.190 Biology and Man

Chemistry

- 65.010 Introductory Chemistry
- 65.100 General Chemistry
- 65.106 General Chemistry (for non-Science students)

Classical Civilization

- 13.100 Introduction to the Classical World
- 13.209 Greek and Latin Literary Genres

Computing Science

- 95.101 ★ Introduction to Computers for the Social Sciences
- 95.102 ★ Introduction to Computing Science

Economics

- 43.100 Principles of Economics*
- 43.101 Contemporary Economic Issues

English

- 18.100 English Authors from Chaucer to T.S. Eliot
- 18.101 English and Continental Texts: Dante to T.S. Eliot
- 18.102 Form and Tradition
- 18.162 Twentieth Century Literature*
- 18.309 Greek and Latin Literary Genres**

French

- 20.001 Elementary French
- 20.010 Readings in Modern French**
- 20.011 Intermediate French
- 20.100 La littérature française de La Chanson de Roland à Zola*
- 20.101 Langue et littérature I: Du moyen âge à l'époque moderne
- 20.102 Langue et littérature II: Auteurs modernes
- 20.103 Langue et littérature III: Le Canada français
- 20.104 Langue et littérature IV: Le théâtre
- 20.105 Langue et civilisation française
- 20.106 ★ Reading French
- 20.107 ★ Practical Phonetics
- 20.108 French Language Course for Non-Majors
- 20.111 Advanced French (A)
- 20.112 Advanced French (B)
- 20.120 Cours de langue française (not open to French-speaking students)
- 20.151 French-Canadian Literature
- 20.152 French Literature
- 20.161 Introduction to Literature (A)
- 20.162 Introduction to Literature (B)
- 20.163 Introduction to Literature (C)
- 20.181 Civilization I
- 20.201 ★ Le français oral** (Not open to French-speaking students)
- 20.203 ★ Grammaire française**

Geography

- 45.101 The Geographic Web
- 45.200 ★ Introduction to Cartography**
- 45.202 ★ Air Photo Interpretation**
- 45.230 Cultural Geography**

Geology

- 67.100 General Geology
- 67.111 ★, 67.112 ★ Environmental Geology I and II
- 67.235 Palaeontology and Stratigraphy I**

German

- 22.015 Introductory German A
- 22.016 Deutsch I (a direct method course for beginners)
- 22.017 Introductory German B
- 22.100 Intermediate German A
- 22.101 Intermediate German B
- 22.102 Intensive Introductory German (two credits)
- 22.201 ★ Spoken German**
- 22.202 ★ Written German**
- 22.220 Studies in German Culture and History**

Greek

- 15.015 Introduction to Language and Reading
- 15.100 Literature and Reading

History

- 24.014 The Origins of North American Society
- 24.105 Civilization During the Middle Ages
- 24.112 Europe in Modern Times
- 24.113 A Political and Diplomatic History of Europe from

1715 to 1919

Any 200 level course in History may be taken by First year students.

Interdisciplinary

10.100 Humanities: An Examination of Selected Works from Biblical Times to the Present (not open to Qualifying University year students)

60.100 Science: Man and His Environment

Italian

26.015 Introduction to Italian

26.100 Intermediate Italian A

26.105 Intermediate Italian B

26.201 ★ Italian Conversation**

26.202 ★ Italian Composition**

26.210 The Italian Heritage: Literature, Arts and Society in Italy. Arts option to be given in English.

Journalism

28.110 Introduction to Human Communication

Latin

16.015 Beginning Latin

16.100 Literature and Reading

Law

51.100 Introduction to Legal Studies

51.220 Commercial Law I

Linguistics

29.100 Introduction to Linguistics

Mathematics

69.010 Introductory Analysis

69.011 Introductory Algebra

69.100 Elementary Calculus and Algebra

69.101 Introductory Mathematics

69.102 Calculus

69.112 Algebra

69.130 Excursions into Mathematics

69.140 Gambling

69.207 ★ Elementary Calculus II

69.217 ★ Linear Algebra

69.257 ★ Introduction to Statistics

Music

30.060 Elementary Materials of Music

30.100 Introduction to the Music of Western Civilization

30.110 The Music of Western Civilization*

30.160 Materials and Techniques of Music

Philosophy

32.101 ★ Ethics and Philosophy of Religion

32.102 ★ Knowledge and Meaning

32.103 ★ Philosophical Texts I

32.105 Philosophical Texts

32.106 ★ Metaphysics and Theory of Knowledge

32.107 ★ Philosophical Texts II

32.110 Consciousness and Reality

32.120 Reason and Argument

32.140 Explanation and Objectivity

32.150 Contemporary Moral, Social and Religious Issues

Physics

75.010 Pre-University Physics

75.100 Introductory Physics

75.105 Introductory Physics (for non-Majors)

75.150 Introduction to Astronomy

75.190 Astronomy (for non-Science students)

75.195 Physics of Music (for non-Science students)

Political Science

47.100 Introduction to Political Science

Portuguese (offered in the Department of Spanish)

38.016 Introductory Portuguese

38.106 Intermediate Portuguese

Psychology

49.100 Introductory Psychology

Religion

34.100 Introduction to World Religions

34.120 Origin and Early Development of Judaism and Christianity

34.130 Religion and Modern Culture

34.201 Women in Religious Traditions

34.207 Religions of the Ancient Near East

34.240 Judaism and the Jewish People

Religion—Languages

34.015 Introduction to Biblical Hebrew

34.016 ★ Introduction to Arabic (offered in Linguistics)

34.017 Introduction to Sanskrit

Russian

36.015 Introductory Russian

36.100 Intermediate Russian

36.101 ★ Russian Conversation

36.110 Scientific Russian

36.200 Advanced Russian

36.203 Russian Grammar

36.250 Russian Classics of the Nineteenth Century

36.260 Russian Literature in Translation

Sociology—Anthropology

56.100 Principles of Comparative Social Structure

Spanish

38.015 Introductory Spanish

38.100 Intermediate Spanish

38.101 Intensive Intermediate Spanish*

38.102 Intensive Introductory Spanish* (two credits)

Intensive Spanish Program: First term: St. Patrick's College (2½ credits) Second term: Spain (2½ credits)

Ukrainian (offered in the Department of Russian)

36.016 Introductory Ukrainian

- 36.116 Intermediate Ukrainian
36.216 Advanced Ukrainian

Note: With special departmental approval, the following departments will allow First year students to take certain courses numbered 200 and above: Art History, Classics (Greek, Latin), French, German, Geography, History, Italian, Music, Philosophy, Russian and Spanish.

Course Load

The normal course load for a full-time student in the Faculty of Arts, during the Winter session, is the equivalent of five full courses. The normal course load limit for a part-time student in the Winter session is the equivalent of two full courses.

Students may register for a maximum of two courses in the Summer session, i.e. two Evening courses, or one Evening and one Day course, or two Day courses. (A supplemental examination is considered to be one course in calculating the course load for the Summer session.)

A full-time student may exceed the limit to a maximum of six courses and a part-time student to a maximum of three courses only with the permission of the Faculty Registrar and of his Major department. This permission may be granted if certain conditions are met. A student who was full-time in the previous session must have maintained a C average overall in that session and have a C average in all the courses of his Major. A student who was part-time in the previous session must have been registered in a minimum of two courses and have maintained an average of C in these courses.

Standing in Courses

Standing in courses will be shown by alphabetical grades as described on p. 37.

In addition the following symbols will apply to the Faculty of Arts only.

Abs

Absent from formally scheduled final examinations where the necessary termwork has been completed. (This grade bears academic penalty in that for calculating grade point averages or promotion it is interpreted as an FNS grade.)

Def

Final grades deferred for personal or medical reasons with prior approval of the Arts Faculty Committee on Admission and Appeals.

IP

Honours thesis or essay is "In Progress".

Supplemental examinations will receive a letter grade.

Promotion

A full-time student in Qualifying University year, First year, Certificate in Public Service Studies, or Certificate in the Teaching of English as a Second Language, must pass four of his first five courses and obtain a grade of C – or better in at least two of these courses. If he passes three courses in the Spring he will be considered to have passed his year *conditionally*. He must pass an additional course and obtain the two C – 's by the end of the August examination period.

In order to meet these promotion requirements a student may write supplemental examinations in a maximum of two course credits, or may substitute a maximum of two replacement courses in the subsequent Summer session.

A part-time student in Qualifying University year or First year must pass four courses in the first six attempts and obtain a grade of C – or better in at least two courses.

Failure

A full-time student who has not yet been promoted to the course-credit system has failed his year if:

- (a) he does not pass at least three courses in the Spring examinations; or
- (b) after a conditional pass in the Spring he does not pass four courses and have C – or better in at least two courses by the end of the August examinations.

A part-time student who has not yet been promoted to the course-credit system has failed his year if:

- (a) he fails the first three courses; or
- (b) he does not pass at least two courses out of the first four.

Probation

A full- or part-time student designated as having failed his year may continue academic studies as a student on *probation*, retaining as credits toward the degree but not towards promotion requirements, those courses which he has passed.

A full-time student on probation must pass a minimum of four courses with a grade of C – or better in at least two of these courses by Spring final examinations.

A part-time student on probation must pass four of his next five courses with a grade of C – or better in at least two of these courses.

Ineligible to Return

A student on probation who fails to meet the terms of probation, thereby failing for a second time, is ineligible for further registration in a degree program in the Faculty of Arts.

Course Credit System

Upon successfully meeting promotion requirements at the end of First year the student will proceed on the Course Credit System. Under this system there is no promotion from one year to the next. Credits are accumulated individually according to a pattern approved by the Faculty and the Major or Honours department.

A student must complete his program within seven years of promotion to the Course Credit System.

Supplemental Examination Privileges

In addition to the regular final examinations, students of the Faculty of Arts may, under special circumstances be granted permission to write deferred examinations, grade-raising examinations and supplemental examinations. All of these examinations will be graded by the alphabetical scale and the grade obtained will supersede any previous grade assigned in the same course. These examinations must be written at the first scheduled supplemental examination period following the session in which the course was taken.

A student unable to write a final examination because of illness or other circumstances beyond his control, or whose performance on the examination has been impaired by such circumstances may apply to the Committee on Admission and Appeals through the Arts Faculty Registrar for permission to write a deferred examination. For details regarding procedures please consult the section "Special Final Examinations", p. 39.

A student may request permission to write an examination in a course that he has already passed. No more than three grade-raising examinations may be written in any degree program (including Qualifying University year). Please refer to "Special Supplemental Examinations", p. 39.

Supplemental examinations may be written in courses which have received a grade of F. No student will be

permitted to write a supplemental in a failed course for which he has received a grade of FNS or Abs.

Permission to write supplemental and grade-raising examinations will be subject to the following limitations: (please note that "one course" is taken to mean one full course or two half-courses.)

1. No student may write supplemental examinations and/or grade-raising examinations in more than two courses in any academic year.

2. A student may not write examinations in more than two full courses at the August examination period. This includes supplemental examinations, grade-raisers and Summer session courses.

3. Part-time students may not write supplemental or grade-raising examinations in more than two of their first six courses.

4. A student on probation who fails to meet the terms of his probation may not write supplemental or grade-raising examinations.

5. A part-time student who fails two or more courses in a single session may not write supplementals or grade-raisers.

6. A student who passes conditionally in the Spring and fails to meet the conditions of promotion at the August examination session may write supplementals or grade-raisers in Summer session courses only if he is a potential Fall graduate.

The number of supplemental examinations which may be written by any student is subject to the following regulations:

1. A student registered in five or more courses may write supplementals or grade-raisers in the equivalent of two courses.

2. A student registered in four courses may write one supplemental in one course and a grade-raiser in one course or grade-raisers in two courses.

3. A part-time student who fails only one course in a given session may write supplementals or grade-raisers in the equivalent of one full course.

Transfer of Credit

Every student will normally be required to complete at least his last five courses at Carleton University.

In special cases students may be permitted to complete a maximum of two of the last five courses at another

institution with prior approval of the Faculty Committee on Admission and Appeals and the Major department.

A student who takes courses elsewhere with a letter of permission, may, with departmental approval, use the grades to meet graduation requirements.

Bachelor of Arts Major Programs

Programs

Major and Combined Major programs are offered in: Art History, Classical Civilization, Classics (Latin, Greek), Economics, English, French, Geography, German, History, Italian, Law, Linguistics, Mathematics, Music, Philosophy, Political Science, Psychology, Religion, Russian, Sociology-Anthropology, Spanish. With the consent of the Department of Biology, a Major in Biology in the B.A. degree program may be taken.

Note: In the following regulations a course is defined as one full course or two half-courses.

Degree Requirements

Candidates will take a total of twenty full courses or equivalent after Junior Matriculation, or fifteen after Senior Matriculation.

Major Program Requirements

Depending upon departmental requirements, students majoring in a single subject take from five to seven courses in that subject following completion of Qualifying University year or Senior Matriculation. Students electing a Combined Major take four or five courses in each of the Major subjects.

Students may declare a Major upon application for admission to a degree program, during First year, or before entry to Second year.

A minimum of four courses in Second and Third years must be in the student's Major (five if one is not taken in First year). The others are chosen with the approval of the Major department.

Combined Major programs must be arranged in consultation with the two departments concerned.

To enter Third year of a Major program a student must have at least a C- average in the courses of his Major or Majors, and must also comply with any additional requirements of his program. A student below the required standing at the end of the year prior to his graduation may have to withdraw from his Major.

Graduation

Students expecting to graduate in the Spring must make application on the appropriate form in the Arts Faculty Registrar's Office by February 1, and those expecting to graduate in the Fall, by September 1.

To qualify for graduation the student must:

1. present the number of course-credits required for his degree program as specified by the Faculty;
2. have a grade of C- or better in at least half of these courses;
3. present a minimum of eight courses at the 200 level or higher in the B.A. program;
4. have an average of C- or better in the courses in his Major field or fields;
5. after completion of the First year requirements and promotion to the course-credit system, complete his program:
 - (a) within seven years; and
 - (b) with no more than a total of five supplemental, special supplemental examinations; course repetitions or course replacements;
6. be recommended by his Major department or Faculty.

To meet the requirements for the C- average in the Major, only those courses in the Major necessary to make up the required total for graduation in the Major department need be counted, but all obligatory courses must be counted. Courses taken to satisfy Qualifying University year will not be included in calculating the C- average.

A graduating student in a three-year program will be designated as graduating 'with distinction' if:

1. he has successfully completed the fifteen courses required for the degree without a course failure, supplemental, repetition or replacement;
2. the ten courses taken beyond the First year requirements were:
 - (a) approved by the candidate's department and Faculty and completed while he was a registered student of Carleton University;
 - (b) graded by Carleton either directly or by acceptance and translation of the grade from another academic institution (at least five of these courses must be taken at Carleton University); and
 - (c) graded under the Carleton University system and the grade point total was at least ninety grade points.

Bachelor of Arts Honours Programs

Programs

Honours programs are offered in Anthropology, Art History, Classics, Economics, English, French, Geography, German, History, Law, Linguistics, Mathematics, Philosophy, Political Science, Psychology, Public Administration, Religion, Russian, Sociology, Soviet Studies, Spanish.

Combined Honours programs are also offered within the Faculty of Arts and with other faculties and schools, including approved combinations with the Department of Biology. For details, see departmental entries.

See also:

Honours program in Commerce (p. 60)

Honours program in Journalism (p. 62)

Honours program in Music (B.Mus.) (p. 155)

Honours program in Public Administration (p. 65)

Note: The following regulations apply also to students enrolled in the Bachelor of Music Honours program.

Admission to Honours

New students should refer to general admission requirements outlined on pp. 25-34.

In-course students wishing to enter Honours or Combined Honours programs must in the first instance apply to the chairman of the department or departments concerned.

Students may apply to enter the Honours program upon application for admission to a degree program, during First year, or before entry to Second year.

For entry into Honours, a student must have a grade point average of 6.0 or better in the Honours subject, and 4.0 or better average overall, and the recommendation of the Honours department or departments.

A student in his final year of a Major degree program wishing to be considered for entry to an Honours program must apply to the Honours department or departments to have his name withdrawn from the graduation list before March 1 of that year. If, subsequently, he is not accepted for an Honours program, his name will be returned to the graduation list.

While the consent of the department or departments concerned is necessary for entry to an Honours program, the department cannot establish a standard of entrance based on a grade point average which is higher than that established by the Faculty as set out in the foregoing paragraphs. A student who considers that he meets the requirements for entry to an Honours program but who

has not been accepted by any department may appeal to the Arts Faculty Committee on Admission and Appeals for review of his case. The Committee will report to the Arts Faculty Board on all such appeals. It should be noted, however, that departmental capacities to accept all qualified Honours candidates may be limited by physical resources.

Degree Requirements

Candidates for a degree with Honours will complete a *minimum* of twenty-four full courses or equivalent in five years if admitted by Junior Matriculation, or a *minimum* of nineteen full courses or equivalent in four years if admitted by Senior Matriculation. Most departments require twenty full courses or equivalent after Senior Matriculation. Students should therefore examine carefully the exact number of courses required for the degree by each department as stated in the Calendar.

In a Combined Honours program where the student chooses his Honours thesis or comprehensive examination in a department requiring only nineteen courses, the total number of courses required for graduation will be nineteen. In all other cases, twenty courses will be required.

The Honours degree will not be awarded to students taking less than the equivalent of five full courses for credit at Carleton University. Course load see p. 55.

Honours Program Requirements

The programs of studies in Honours are carefully prescribed and are given close supervision by the department or departments responsible for the Honours subjects or fields of study. The student in Honours should consult the requirements of the appropriate department regarding its Honours program.

The regulations regarding *Promotion, Probation, Failure, Supplemental Examination Privileges, and Special Supplemental Examinations* outlined on pp. 55-56 apply to Honours students. In addition, Honours students must meet the following requirements:

For continuance in an Honours program a student must maintain a grade point average of 6.0 or better in the Honours subject or subjects, and 4.0 or better average overall.

At the beginning of his last five courses, the student in Honours must have a grade of C- or better in at least half of the courses to be credited towards his degree.

A student who fails to maintain Honours standing must withdraw from the Honours program; he may apply for admission to a Major program.

Graduation

Students expecting to graduate in the Spring must make application on the appropriate form in the Registrar's Office by February 1, and those expecting to graduate in the Fall, by September 1.

To qualify for graduation the student must:

1. present the number of course-credits required for his degree program as specified by the Faculty;
2. have a grade of C- or better in at least half of these courses;
3. a minimum of eleven courses must be at the 200 level or higher in the B.A. Honours program;
4. have an average of C- or better in the courses in his major field or fields, and an overall grade point average of 3.6;
5. after completion of the First year requirements or promotion to the course-credit system, complete his program: (a) within seven years; and (b) with no more than a total of three supplemental, special supplemental examinations, course repetitions or course replacements;
6. be recommended by his Major department or faculty.

Every student will be required to complete at least his last five courses at Carleton University.

In special cases students may be permitted to complete a maximum of two of the last five courses at another institution with prior approval of the Faculty Committee on Admission and Appeals and the Major department.

Honours Thesis or Essay

The Fourth Year Honours thesis or essay must be completed within eighteen months of the initial registration. The significant Calendar dates regarding submission and/or re-registration are as follows:

The Honours thesis or essay must be submitted to the Chairman of the department or departments before April 1, or such other date as the department may specify for Spring graduation. If the thesis or essay has not been completed by this date, it will be recorded as "In Progress".

If the Honours thesis or essay is not submitted to the department before June 1, the student may, with the Honours supervisor's consent, re-register for the course in the Summer session and pay the appropriate fee. The completed project must be submitted to the Chairman of the department by the first day of classes in September, and the final grade must be submitted to the Office of the Dean by October 1 for Fall graduation.

If this requirement has not been met, the student must re-register in September for the course and pay the appropriate half-credit fee. The thesis or essay must be submitted by April 1 to the Chairman of the department. If the completed work is not submitted by this date, a grade of F will be recorded and the student will forfeit his Honours status.

With the recommendations of the Honours supervisor, a student may appeal to the Chairman of the department to repeat the Honours thesis or essay. If permission is granted, the student will be required to register in the Honours thesis or essay at a full credit fee.

Classes of Honours Degrees

Four classes of Honours are awarded. They are determined by the grade point average, as described on p. 37 as follows:

First Class

9.0—12 in Honours subject and
6.0 or better overall

High Second Class

8.0 or better in Honours subject and
5.0 or better overall

Second Class

6.0 or better in Honours subject and
4.0 or better overall

Third Class

4.0 or better in Honours subject and
3.6 or better overall

Departments may recommend the next higher class of Honours degree in the case of a student one of whose averages is in the appropriate higher range and the other within 0.2 grade points of the higher range.

To determine the class of degree for students in Combined Honours programs the average is taken in each of the two subjects, and the simple average of the two is used. If agreeable to both of the departments concerned, the final average may be computed on the basis of the weighted average of the required number of Honours courses in the two subjects.

Departments may use discretion for establishing the class of degree in counting the number of Honours courses where students have more than the minimum number of courses.

In the case of a student in an Honours program who takes courses elsewhere with the permission of his department, the grades received on such courses may be incorporated with those obtained at Carleton University if his department so recommends (See p. 59.)

School of Commerce

Officers of the School

Director

J.B. Waugh (*Accounting*)

Committee of Management

C.D. Acland (*Accounting*)

L. Campbell (*Law*)

R. Caterina (*Accounting*)

R. Ghosh (*Student Representative*)

N.H. Lithwick, *Chairman, Economics*

I.A. Litvak (*Economics*)

P. Mokkelbost (*Economics*)

P. Rudin (*Student Representative*)

D.A. Smith (*Economics*)

E. Swimmer (*Public Administration*)

R.A. Wendt, *Dean, Faculty of Arts, Division II*

M. Whittemore (*Student Representative*)

Bachelor of Commerce with Honours

The Bachelor of Commerce degree is an Honours program and candidates are required to complete a four year course of studies after Senior Matriculation.

The Commerce program is designed to provide a broad foundation in the academic disciplines underlying business and economic affairs. The required courses introduce the student to the relevant academic disciplines and to the functional areas of management. Each student, in consultation with the faculty of the School, may structure the balance of his program to build upon this foundation in accordance with his personal career objectives and areas of interest. Suggested options for selected areas of interest are listed below. (See *Fields of Interest*.)

The program is offered chiefly in the Day division; most course offerings are also available in the Evening division. Each student must spend a minimum of one year as a full-time student in the Day division, however.

Students who intend to proceed to a professional accounting qualification as a Chartered Accountant (C.A.), Certified General Accountant (C.G.A.), or Registered Industrial Accountant (R.I.A.), should consult with one of the Faculty members in Accounting.

Students who may wish to proceed to a Master's Degree in Public Administration at Carleton University are recommended to discuss their optional courses with the Director of the School of Public Administration.

Admission Requirements

First year

1. Completion of Qualifying University year with a grade point average of 4.0 or better including Mathematics 69.010; or

2. The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including Functions and Calculus.

3. Students who fail to meet the standards required for entry to the Honours program may elect to take their First year in the three year Arts program. The First year program in Arts should include Accounting 41.101★, 41.102★, Economics 43.100 or 43.101 and Mathematics 69.101. Application may then be made for admission to the Second year of the Commerce program provided that the requirement of not less than two C grades in Accounting, Economics and Mathematics has been met.

Second and Subsequent Years

Applications for admission to the Second or subsequent years will be assessed on their merits. Minimum transfer requirements are stated on pp. 28-29. Advanced standing for studies undertaken elsewhere will be granted only for those subjects which are recognized as the equivalent of subjects offered at Carleton University.

Course Requirements

Candidates for the Bachelor of Commerce degree take a total of 25 courses after Junior Matriculation or 20 after Senior Matriculation. Students with a prior university degree will receive advanced standing where appropriate. Acceptance in the program will be governed by the standards required for entry to the Honours program, however, and a minimum of seven additional courses will be required to qualify for the Bachelor of Commerce degree.

Academic Standing

Students entering the Second year of the program must have at least two C grades in the three required First year courses; Economics, Mathematics and Accounting.

The attention of students is drawn to the regulations relating to Honours on p. 58 of the Calendar. In calculating grade point averages for the class of Honours the average will be taken of all required courses.

Course Load

The normal course load for a full-time undergraduate during the winter session is five full courses. In the Commerce program slightly more than half of these courses are obligatory. Subject to program approval the remaining courses may be selected in the light of individual preference.

Course Selection

Required Courses
First Year

Accounting 41.100
 Economics 43.100
 Mathematics 69.100 or 69.101
 Psychology 49.100 or Sociology-Anthropology 56.100

Second Year

Economics 43.200
 Economics 43.220
 Management Studies 42.250★
 Management Studies 42.357★

Third Year

Accounting 41.390
 Economics 43.210
 Management Studies 42.408★
 Management Studies 42.358

Fourth Year

Two approved 400 level courses
 Management Studies 42.490★

Suggested Options for Selected Fields of Interest

Accounting and Finance

Accounting 41.200, 41.301★, 41.306★, 41.312★, 41.325★, 41.326★, 41.400
 Law 51.220, 51.320, 51.324
 Management Studies 42.406★, 42.410★, 42.411★

Economics

Economics 43.315 or 43.325, 43.335, 43.360★, 43.361★, 43.430, 43.465
 Management Studies 42.406★, 42.407★
 Law 51.324
 Political Science 47.300★
 Sociology 53.345★

Labour and Industrial Relations

Economics 43.356★, 43.335, 43.435, 43.465
 Law 51.441, 51.445★
 Psychology 49.210, 49.340
 Sociology 53.245, 53.246★, 53.254★, 53.360, 53.440★ or 53.441★

Marketing

Economics 43.418★
 Journalism 28.201
 Law 51.220, 51.221

Quantitative Methods

Mathematics 69.201, 69.351
 Management Studies 42.404★, 42.405★, 42.409
 Economics 43.485

Courses Offered

Courses offered by the School of Commerce are listed under "Commerce" in alphabetical order with all courses offered by the Faculty of Arts. See p. 83.

School of Journalism

Officers of the School

Director

G. Stuart Adam

Professor Emeritus

Wilfrid Eggleston

Professors

Wilfred H. Kesterton

Melville W. Thistle

Associate Professors

G. Stuart Adam

Roger Bird

Carman Cumming

Murray Goldblatt

Tom McPhail

T. Joseph Scanlon

Marvin Schiff

Tom Sloan

Brian Taylor

John R. Weston

Phyllis Wilson

Assistant Professors

George Frajkor

Patrick MacFadden

Joan Topolski

Joel Weiner

Visiting Associate Professors

Cameron Graham

David Van Praagh

Anthony Westell

Lecturer

Peter Johansen

Sessional Lecturers

Ivan Barclay

Robert Blackwood

Charles Gordon

Ted Grant

Carl Mollins

Bob Rupert

Bruce Yemen

Seminar Leaders

Elsbeth Chisholm

Kenneth Pagniez

Field Work Supervisors

Bob Staton (CKOY)

Ernie Calcutt (CFRA)

Russ Mills (*The Ottawa Citizen*)

Arch MacKenzie (*Canadian Press*)

Dal Warrington (*Canadian Press*)

Gordon Eastwood (*The Ottawa Journal*)

Burns Stewart (*Canadian Broadcasting Corporation*)

Max Keeping (CJOH)

John Doherty (*John Doherty and Co. Ltd.*)

Bill Baker (CFGO)

Jack Van Dusen (*Canadian Government Travel Bureau*)

Caroline Midgley (*Carleton University Information Office*)

Advisory Council

T.J. Allard, *Executive Vice-President, Canadian Association of Broadcasters*

Guy de Merlis, *Department of Labour*

Marcel Gingras, *Rédacteur en chef, Le Droit, Ottawa*

Martin Goodman, *Editor, Toronto Daily Star*

Stuart Griffiths, *President and Managing Director, Bushnell Communications Ltd*

Gordon Pape, *Southam News Service, Montreal*

I. Norman Smith, *Former Editor, The Ottawa Journal*

Christopher Young, *Editor, The Ottawa Citizen*

Michael Oliver, *President of the University*

G. Stuart Adam, *Director of the School*

J.I. Jackson, *Registrar of the University*

Marston LaFrance *Dean, Faculty of Arts, Division 1*

Bachelor of Journalism Honours Programs

Candidates for the degree of Bachelor of Journalism with Honours are required to complete a four-year course of studies after Senior Matriculation. Journalism courses, with the exception of a few seminars, are offered in the Day division only. Optional courses, however, are offered in the Evening division, and Second year requirements are offered in the Summer session.

The aim of the program is not to train technologists; it is to give students the ability to investigate, interpret and communicate intelligently in any of the mass media. To this end, courses are designed to give students both professional skills and an understanding of how media function, in order that they can adapt to the various areas of modern journalism. Advantage is taken of the many resources outside the University provided by the location of the University in the national capital.

Combined Honours

Honours programs may be taken by students in the four-year undergraduate program in which Journalism is combined with other programs by arrangement. The minimum requirements are the same as those for the Bachelor of Journalism with Honours, with the exception that students in Combined Honours may write their graduating research paper for either of the participating departments. In some cases these arrangements have been formalized into intra-departmental regulations. (See, for example, Combined Honours program in Journalism and Political Science, p. 166 and in Journalism and Economics, p. 90.)

One-Year Course

A one-year course leading to the Bachelor of Journalism degree with Honours is open to students who are already university graduates.

Admission Requirements

First Year

To the First year of the course leading to the Bachelor of Journalism degree:

1. Completion of Qualifying University year with a grade point average of 4.0 or better
2. The Ontario Secondary School Honour Graduation Diploma with a *minimum* 65% average and including a language other than English (French is recommended).

Second and Subsequent Years

Students may normally be permitted to transfer into Second year Journalism provided they have a minimum B- average in their First year and provided they make up First year Journalism requirements: Journalism 28.100, 28.101★ and a language, preferably French.

Note: Journalism students must become reasonably proficient on the typewriter as soon as possible. All assignments in the professional journalism courses are done by typewriter.

Course Requirements

Candidates for the degree of Bachelor of Journalism take a total of 21 courses in four years. The courses consist of subjects from those listed as follows:

First Year

Journalism 28.100 and 28.101★

A language course, preferably French*

Three approved options

*Students may substitute an approved option if they can demonstrate a proficiency in the French language to the degree required to report accurately in English on statements and research materials in French. Students whose native language is other than English may have the language requirement waived.

Second Year

Journalism 28.200 and 28.220

An approved course in Canadian history, normally History 24.230,*

Two approved options

*Students who expect to practise Journalism in another country may be advised to choose a different History course.

Third Year

Journalism 28.320, 28.321★ and 28.351★

Three and one-half approved options. These options must include at least one but may include additional Third year Journalism courses. Furthermore, a student should continue working towards the departmental requirement that before graduation four courses be taken in a field other than Journalism, with at least one of these courses at the 300 level or higher. The Journalism courses available as options are: Journalism 28.300, 28.301, 28.310, 28.333 and 28.352★.

Fourth Year

At least one of Journalism 28.490 or 28.421, and 28.498. Three approved options. Students will note the departmental requirement described above regarding non-Journalism courses. The Journalism option offered in Fourth year is Journalism 28.400.

Academic Standing

A candidate for the degree of Bachelor of Journalism with Honours must have at least C level standing in his Journalism courses, and be recommended for graduation by the School.

If after the regular examinations in any year a student is below that C standard, he should raise his grades in some subjects by writing special supplemental examinations. Students may not continue into Third year without satisfactory standing. Admission to Third year will be based on a minimum of (1) C standing in Journalism 28.220 (2) an average of C in the three Journalism subjects taken for credit in the first two years: Journalism 28.100, 28.200 and 28.220 (3) an overall grade point average of 3.6 (4) completion of Journalism 28.101★.

One-Year Program

The holder of a Bachelor's or Master's degree in Arts or any field may be permitted to enrol in the one-year program and, if his or her background has reached the required standard, may qualify for the degree of Bachelor of Journalism with Honours in one academic year of five and a half courses. If the background is insufficient, one or more additional credits may be required for the degree.

The one-year program will normally consist of the following:

1. Journalism 28.321 ★ (Career Seminars) or Journalism 28.422 ★ (Communications Research I)
2. Journalism 28.434 ★ (Media and Society I) and Journalism 28.435 ★ (Media and Society II)
3. Journalism 28.461 ★ (Perspectives on Modern Society) and Journalism 28.462 ★ (Public Issues in Canada)
4. Journalism 28.440 ★ (Media Practices) and Journalism 28.445 ★ (Editorial Techniques)
5. Journalism 28.441 ★ (Reporting Laboratory I) and Journalism 28.442 ★ (Reporting Laboratory II)
6. Journalism 28.499 (Honours Research Project)

Students enrolled in the one-year program as the Qualifying year of the Master's program in the communications stream will be required to take five credits including two seminars in communications research, described in the course list under Journalism 28.422★ and 28.423★, and omitting Journalism 28.321★, 28.445★ and 28.499. Students proceeding to their Master's degree in the specialized reporting stream will be required to take five credits including a seminar in interpretative reporting, described in the course list under Journalism 28.444★, and omitting Journalism 28.422★, 28.423★ and 28.499. Arrangements will be made for apprenticeship assignments to supplement such practical experience as graduate students may already possess. Please note the foregoing reference to proficiency in typewriting, and the paragraph relating to academic standing and grades. A grade of C- or higher must be obtained in each of the courses required in the one-year Bachelor of Journalism program for graduates.

Classes of Honours

The grade point system by which standing is expressed is outlined on p. 37.

The class of Honours degree for the one-year program students will be calculated as follows:

1. The Honours average will be normally calculated on the basis of a weighting system which provides a weight of two for Journalism 28.441★ and 28.442★, one for each pair of half courses listed in the program and one for 28.499, that is, the marks for these courses will be multiplied by the appropriate weight and the total divided by seven.

2. Students admitted to the one-year program will be notified of the value that has been applied to their overall previous academic work and this value will be included in the calculation of the overall average as if it represented the first three years of university work at Carleton.

Courses Offered

Courses offered by the School of Journalism are listed under "Journalism" in alphabetical order with all courses offered by the Faculty of Arts. See p. 137.

Officers of the School

Director and Associate Professor
G.B. Doern

Assistant Professors
Allan Maslove
Donald Swartz
Eugene Swimmer

Lecturer
Ian MacDonald

Affiliated Faculty Members
K.A.L. Acheson (*Economics*)
C.D. Acland (*Accounting*)
D. Bellamy (*Political Science*)
W. Hettich (*Economics*)
Ian Hunter (*Law*)
J. Nellis (*Political Science*)
D.C. Rowat (*Political Science*)
J.B. Waugh (*Accounting*)
M.S. Whittington (*Political Science*)
V.S. Wilson (*Political Science*)

Committee of Management
G.B. Doern (*Public Administration*)
D. Elliot (*Law*)
D. George (*Dean, Faculty of Engineering*)
A. Maslove (*Public Administration*)
C. Maule (*Economics*)
I. MacDonald (*Public Administration*)
A. Steeves (*Sociology/Anthropology*)
D. Swartz (*Public Administration*)
E. Swimmer (*Public Administration*)
R.J. Van Loon (*Political Science*)
J. Waugh (*Commerce*)
R.A. Wendt (*Dean, Faculty of Arts, Division II*)
V.S. Wilson (*Political Science*)

General Information

The School of Public Administration was established in 1953 through the assistance of a generous grant from the Atkinson Charitable Foundation.

The programs of the School have been developed out of an awareness of the need to provide a general education that will familiarize public servants with the main organizational, political, economic and legal elements of the environment in which they perform their role.

The Honours B.A. program is planned on the assumption that the most suitable education for a person desiring to be a capable public administrator is broad and general in base, with specialization at a later stage. While it is designed to be of particular use to students contemplat-

ing careers in public employment, it also provides a sound general education for those considering the legal profession or business.

The Certificate program, on the other hand, will be most helpful to those who desire training in fields directly related to Public Administration. This course is designed to encourage public servants without university training to broaden their background. Since they are allowed degree credit for this work, they will also be encouraged, upon its completion, to continue toward a Bachelor of Arts degree. The Graduate Diploma course and the Master of Arts program are described in the Graduate Studies Calendar.

Public employees not interested in registering for studies leading to a degree, a certificate, or a diploma should note that they may take, as Special students, any of the subjects listed in Public Administration programs for which they have the requisite background. Their attention is directed also to non-credit extension courses related to Public Administration which are offered from time to time by the University. Details may be obtained from the Office of Continuing Education.

As Carleton University is located in the capital city and enjoys close relations with many government agencies, students of Public Administration may profit greatly from the unique advantages thus offered. Such institutions as the Library of Parliament, The National Library, the Public Archives, Statistics Canada, and the specialized libraries of the several government departments, all offer unusual opportunities for study in Ottawa. Advice and assistance are obtained from the Public Service Commission and from officials of other government departments and agencies. Experienced public administrators give lectures or lead seminar discussions from time to time.

Bachelor of Arts with Honours in Public Administration

Qualifying and First years offered in both Day and Evening divisions, last three years offered in Day division only.

Admission Requirements

Same as for Faculty of Arts (see p. 52). Students not meeting Honours requirements for admission to the First year will be considered for transfer to the Second year after successfully completing the First year in a general Arts program.

Course Requirements

Candidates for the degree of Bachelor of Arts with Honours in Public Administration must satisfy all requirements for the B.A. with Honours.

The School requires Honours students to have a reading knowledge of French. By the beginning of the Fourth year, students shall have completed a First year French language course, or its equivalent.

Candidates must present an Honours Essay (Public Administration 50.498) and must achieve a grade of B – or better in this course.

First Year

Students are free to take any five courses from the list of courses open to First year students. Students contemplating Honours in Public Administration should take Economics 43.100 or 43.101 and Political Science 47.100. Students entering Honours in First year must take the above courses.

Second Year

1. Political Science

47.200 Canadian Government and Politics

2. Accounting

41.100 An Introduction to Accounting; or

41.101 Uses of Accounting Information

3. One approved option

4. Law

51.205 Introduction to Public Law

5. One of:

Economics

43.220 Statistical Methods in the Social Sciences

Political Science

47.270 Political Enquiry

Sociology

53.205 Sociological Statistics

Third Year

1. Political Science

47.340 Canadian Public Administration

2. One approved option

3. Economics

43.201 ★ Introduction to Micro-Economic Theory, and

43.211 ★ Introduction to Macro-Economic Theory and Analysis

4. Law

41.455 Law of Public Authorities

5. Computing Science

95.101 ★ Introduction to Computers for the Social Sciences, and

95.102 ★ Introduction to Computing Science

Fourth Year

1. Political Science

47.401 ★ Policy Making in Canada, and one of:

47.300 ★ Provincial Government and Politics

47.301 ★ Intergovernmental Relations

47.302 ★ Canadian Municipal Government

47.303 ★ Canadian Urban Politics

47.304 ★ Political Parties and Elections in Canada

47.402 ★ Policy Seminar

47.403 ★ Politics and the Media

47.404 ★ Interest Groups in Canadian Politics

47.406 ★ Legislative Process in Canada

2. One of:

Economics

43.358 Organization Theory

Political Science

47.446 Theories of Public Administration

Sociology

53.440 ★ and 53.441 ★ Complex Organizations I and II

3. Public Administration

50.498 Honours Essay

4. Public Administration

50.400 Honours Public Administration Seminar

5. One approved option

Certificate in Public Service Studies

Offered in both Day and Evening divisions.

This course is designed primarily for public employees who seek special training in public service subjects at the undergraduate level.

Courses taken for the Certificate are normally creditable towards a Bachelor of Arts degree and a transfer student from the Certificate program into such a degree program will be normally required to take at least nine further courses in addition to those required for the Certificate, to be recommended for the degree. At least five of the courses required for a Bachelor of Arts degree must be completed after the awarding of the Certificate. Full-time candidates for the Certificate are invited to inquire about possible financial aid.

Admission Requirements

Junior Matriculation. The cases of experienced applicants without Junior Matriculation will be considered on their merits and the completion of certain subjects at Carleton may be required before admission. Candidates may be admitted with advanced standing, but must complete at least five courses for the Certificate at Carleton University.

Course Requirements

The following courses are required and the following order is suggested.

1. Political Science 47.100
2. Economics 43.101
3. History 24.230 or Economics 43.325
4. Political Science 47.200
5. Political Science 47.340
6. One other chosen in consultation with the Director according to the needs of the students

Academic Standing

A candidate for the Certificate must obtain a grade of C or better in at least half of the courses taken at Carleton University for the Certificate.

Courses Offered

Courses offered by the School of Public Administration are listed under "Public Administration" in alphabetical order with all courses offered by the Faculty of Arts. (See p. 183.)

Institute of Soviet and East European Studies

Members of the Institute

Director

To be announced

Committee of Management

Michael Oliver (*President of the University*)
Marston La France (*Dean, Faculty of Arts, Division I*)
R.A. Wendt (*Dean, Faculty of Arts, Division II*)
Gilles Paquet (*Dean, Faculty of Graduate Studies*)
Bohdan R. Bociurkiw (*Political Science*)
Denis P. Fitzgerald (*Geography*)
Zbigniew A. Jordan (*Sociology*)
Carl H. McMillan (*Economics*)
George Melnikov (*Russian*)
J. George Neuspiel (*Law*)
John W. Strong (*History*)
Philip E. Uren (*International Affairs*)

Associated Members of the Faculty

Glynn R. Barratt (*Russian*)
Bohdan R. Bociurkiw (*Political Science*)
R. Carter Elwood (*History*)
Denis P. Fitzgerald (*Geography*)
V.I. Grebenshikov (*Russian*)
Zbigniew A. Jordan (*Sociology*)
I.A. Litvak (*Economics*)
Carl H. McMillan (*Economics*)
George Melnikov (*Russian*)
J. George Neuspiel (*Law*)
Teresa Rakowska-Harmstone (*Political Science*)
George Roseme (*Political Science*)
Emilie Stichling (*Russian*)
John W. Strong (*History*)
Philip E. Uren (*International Affairs*)
Paul Varnai (*Russian*)

General Information

A committee on Soviet and East European Studies was formed in 1963 to foster interdisciplinary studies, research, conferences and publications in this area. In 1971 it was transformed into an Institute of Soviet and East European Studies. At present faculty members from seven disciplines (Political Science, History, Geography, Economics, Law, Russian and Sociology) are participating in the Institute's work. On the undergraduate level, the Institute offers an interdisciplinary Bachelor of Arts Honours program in Soviet and East European Studies. Graduates of this program are eligible to apply, under the academic exchange agreement with the University of Leningrad, for nine months of study in the Soviet Union and for nine months of study in Hungary, under the academic exchange agreement with the Institute of Cultural Relations of Budapest, Hungary. The

Institute also offers studies leading to a Master of Arts degree in Soviet and East European Studies. This program, the only one of its kind in Canada, stresses interdisciplinary approaches to the study of the U.S.S.R. and Eastern Europe.

The Institute offers seminars with visiting scholars, sponsors occasional conferences, promotes extension courses in the area, and holds public lecture series devoted to the Soviet Union and Eastern Europe. The papers presented in these series have subsequently been published under the Institute's auspices. The Institute of Soviet and East European Studies works in close association with the School of International Affairs on problems of East-West relations. Students participating in either the undergraduate or the graduate program have at their disposal not only Carleton's rapidly expanding collection of books, documents, periodicals and micro-materials on the Soviet Union and Eastern Europe, but also the extensive holdings of the National Library and other specialized libraries in Ottawa.

Honours Program

The objective of the Honours program is to equip students with the indispensable linguistic tools and to provide, through an interdisciplinary approach, an integrated knowledge of the cultures, historical developments and contemporary social, economic and political problems of the peoples of the area. The program leads to the degree of Bachelor of Arts with Honours in Soviet and East European Studies.

Combined Honours Program

A Combined Honours degree between Soviet and East European Studies and the School of Journalism is offered to interested students.

Course requirements for this degree are planned by the Director of the Institute in consultation with the Director of the School of Journalism, and are designed to accommodate the students' interests and needs.

Admission Requirements

Admission to the program must be approved by the Institute of Soviet and East European Studies and by the Faculty of Arts Committee on Honours. Students with at least a 65% average in Senior Matriculation or a C standing in the Carleton Qualifying University year may be enrolled in the program in the First year. With the consent of the Institute, students may also enter the program in their later years providing they have maintained Honours standing and have completed the program's course requirements to that point.

Course Requirements

Candidates for the degree in Soviet and East European Studies will take twenty courses. All candidates are required to take the equivalent of three full courses in the Russian language. The courses selected will depend on the candidate's language ability and are to be chosen in consultation with the Director.

In the First year, four courses must be chosen from the 100 level or higher level courses, if designated by the Institute as being open to First year students. These courses should be selected as preparation for later study in Soviet and East European area courses offered in the program. The student's First year pattern is selected in consultation with the Director.

In the following years, seven courses (given in no less than three different disciplines) are to be selected from the courses offered by participating departments.

Five additional courses are to be selected in consultation with the Director of the Institute from the offerings of the Departments of Economics, Geography, International Affairs, Law, Political Science, Russian, and Sociology.

Courses Offered by Participating Departments

Russian

- 36.200 Advanced Russian
- 36.201 ★ Advanced Russian Conversation
- 36.203 Russian Grammar
- 36.250 Russian Classics of the Nineteenth Century
- 36.260 Russian Literature in Translation
- 36.300 Russian Style and Composition
- 36.303 Russian Translation
- 36.330 Russian Early Classics
- 36.350 Literature and the Russian Revolution
- 36.360 Studies in Russian Life and Culture
- 36.390 Slavic Language Tutorial
- 36.415 History of the Russian Language
- 36.430 Russian Realism of the Nineteenth Century
- 36.440 Contemporary Russian Drama
- 36.450 Contemporary Russian Literature (After 1935)
- 36.460 Old Russian Literature
- 36.470 Modern Russian Literature
- 36.490 ★ Special Subject
- 36.491 Tutorial

Ukrainian

- 36.016 Introductory Ukrainian
- 36.116 Intermediate Ukrainian
- 36.216 Advanced Ukrainian

German

- 22.380 ★ Special Topic in Twentieth Century German Literature

Geography

- 45.351 Geography of the Northlands
- 45.360 ★ Soviet Union
- 45.361 ★ East Europe
- 45.531 Selected Studies in the Human Geography of Arctic and Subarctic

History

- 24.260 History of Russia and the U.S.S.R.
- 24.360 History of the U.S.S.R.
- 24.361 The Russian Empire
- 24.365 History of Eastern Europe
- 24.460 Selected Problems in Russian History
- 24.461 Selected Problems in Soviet History
- 24.560 Late Imperial and Revolutionary Russia 1855-1921

Economics

- 43.360 ★ Topics in International Economics
- 43.361 ★ Introduction to International Trade
- 43.364 ★ Topics in Area Development
- 43.370 The Economics of Socialism
- 43.470 Comparative Economic Systems
- 43.571 Comparative Economic Systems

Law

- 51.463 Public International Law
- 51.488 Socialist Legal Systems
- 51.520 ★ International Economic Law I
- 51.521 ★ International Economic Law II

Political Science

- 47.320 Soviet Government and Politics
- 47.330 ★ Politics and Literature
- 47.333 Modern Political Thought and Ideology
- 47.415 ★ Eastern European Politics
- 47.431 ★ Marxist Thought
- 47.432 ★ Contemporary Communist Thought
- 47.461 ★ Soviet Foreign Policy
- 47.514 ★ Comparative Communist Politics; Theory and Practice
- 47.515 ★ Comparative Communist Politics; Selected Aspects
- 47.516 ★ Selected Problems in Soviet Politics
- 47.531 ★ Selected Topics in the History of Political Thought

International Affairs

- 46.525 and 46.526 Selected Studies in International and Regional Studies
- 46.525B ★ Integration in Eastern Europe
- 46.526E ★ Foreign Policies and Conflict in Eastern Europe

Sociology

- 53.500 ★ Seminar in Traditional Theory: Marx and Simmel

Note: Not all of the foregoing courses are offered in any given year and not all combinations of courses are possible.

Honours Essay

A student taking Honours in Soviet and East European Studies must write a major research essay (Soviet Studies 55.498) during his final year. This essay carries the weight of one full course. The subject for research will be selected in consultation with the Institute and a supervisor will be assigned. The candidate will be orally examined upon his essay after presentation.

Academic Standing

Students must maintain Honours standing as prescribed by the general requirements of the Faculty of Arts.

Graduate Program

The Institute offers an interdisciplinary Master of Arts program in Soviet and East European Studies with the participation of faculty from the Departments of Economics, Geography, History, Law, Political Science, Russian, Sociology, as well as invited specialists from other universities and visiting scholars from the U.S.S.R. and Eastern Europe. It is designed for students wishing to acquire specialized knowledge of the Soviet and East European area, including proficiency in Russian, before proceeding towards a doctoral degree in one of the disciplines represented in the program, either at Carleton or another university. The program is also suitable for students aspiring to a professional or government career which requires knowledge of the area. For details, consult the Graduate Studies and Research Calendar.

Courses Offered

Courses offered by the Institute of Soviet and East European Studies are listed under "Soviet and East European Studies" in alphabetical order with all courses offered by the Faculty of Arts. See p. 209.

Officers of Instruction

Chairman

N.H. Lithwick

Co-ordinator, Accounting

J.B. Waugh

Associate Professors

C.D. Acland

A. Blair

R. Caterina

W.M. Lawson

J.B. Waugh

Assistant Professor

A.A. Schepanski

Lecturer

P. Downing

Sessional Lecturers

A. Belkaoui

R.M. Bergin

R.W. Brownlee

G. Levitz

J.J. McCrea

F.L. Sbrocchi

D. Siegel

A.R. Thomas

B. Veinot

General Information

Accounting is basically communication—communication of the results of business activity to interested parties such as shareholders, investors, statisticians, governments and also communication to business management of the information needed to aid in managing the enterprise.

As firms continually become larger and more complex, the need for information on financial position and results of operations becomes greater and at the same time this information becomes more difficult to obtain and interpret.

A knowledge of the means by which the accounting process records and summarizes transactions and attempts to present the results in a meaningful manner is necessary to anyone who uses or relies on financial statements.

Students who, after graduation in Commerce, intend to proceed to professional accounting designations: Chartered Accountant (C.A.), Certified General Accountant (C.G.A.), or Registered Industrial Account-

tant (R.I.A.), should consult with members of the Department.

Courses Offered

Accounting 41.100

An Introduction to Accounting

A course open only to students registered in the Commerce program, and to declared Major or Honours students in Economics. Accounting method; concepts of income determination and asset valuation; accounting information and managerial decisions.

Day division: Lectures and problems three hours a week.

Accounting 41.101★

Principles of Financial Accounting

Discussion of the concepts of asset valuation and income measurement underlying the preparation and interpretation of financial statements.

Day and Evening divisions, First term: Lectures and problems three hours a week.

Accounting 41.102★

Management Accounting

An introduction to the problems of the use of accounting data for the purposes of planning and control of operations.

Prerequisite: Accounting 41.101★.

Day and Evening divisions, Second term: Lectures and problems three hours a week.

Accounting 41.200

Intermediate Accounting

Further development of problems of revenue recognition and asset valuation.

Prerequisite: Accounting 41.100 or 41.101★ and 41.102★.

Day and Evening divisions: Lectures and problems three hours a week.

Accounting 41.301★

Forms of Business Organization: The Accounting Implications

Consideration of the accounting problems associated with specific types of organizational form. Topics will include: branch operations; mergers, amalgamations and reorganizations; consolidations; reporting for decentralized operations.

Prerequisite: Accounting 41.200.

Evening division, Second term: Lectures three hours a week.

Accounting 41.306★

Financial Reporting Problems

Discussion and analysis of selected problems relating to the presentation and interpretation of accounting information on financial position and operating performance. Material for discussion will be drawn from real situations,

and from cases. Enrolment in this course may be restricted to thirty students per section.

Prerequisite: Accounting 41.200.

Evening division, First term: Lectures three hours a week.

Accounting 41.312★

Auditing

A course in auditing theory, methodology and application.

Prerequisite: Accounting 41.200, or permission of the instructor.

Evening division, Second term: Lectures three hours a week.

Accounting 41.325★

Cost Accounting

The use of accounting information for purposes of cost control and performance evaluation. Topics will include: analysis and control of elements of cost; design and use of job order, process cost and standard cost systems; analysis of cost variances; variable costing.

Prerequisite: Accounting 41.100 or 41.102★

Evening division, First term: Lectures three hours a week.

Accounting 41.326★

Management Accounting Systems

Discussion of the role of accounting in the functional areas of forward planning, performance evaluation, and the control of operations. Special attention will be given to the problems of forecasting and long-range planning.

Prerequisite: Accounting 41.325★, or permission of the instructor.

Evening division, Second term: Lectures three hours a week.

Accounting 41.390

Computer Technology Applied to Commerce Problems

Introduction to digital computer organization and operations. Programming techniques stressing the use of BASIC and COBOL. Numerical solution to problems of interest in social and management sciences. Simulation of business problems and use of business strategies. (Also listed as Economics 43.390.)

Prerequisite: Economics 43.220 or permission of the instructor.

Day division: Lectures two hours a week, laboratory two hours a week.

Accounting 41.400

Accounting Theory

A study of the evolution of accounting theory and practices, leading to an analysis of current developments and areas of controversy.

Prerequisite: Accounting 41.200.

Day division: Lectures and seminars three hours a week.

Courses Planned for Summer School and Evening Division, 1975-78

Summer 1975

41.101★ / 41.102★, 41.200, 41.312★, 41.390.

Evening Division 1975-76

41.101★ / 41.102★, 41.200, 41.301★ / 41.306★, 41.325★, 41.326★.

Summer 1976

41.101★ / 41.102★, 41.200, 41.301★ / 41.306★, 41.390.

Evening Division 1976-77

41.101★ / 41.102★, 41.200, 41.312★, 41.325★ / 41.326★, 41.390.

Summer 1977

41.101★ / 41.102★, 41.200, 41.390.

Evening Division 1977-78

41.101★ / 41.102★, 41.200, 41.301★ / 41.306★, 41.390.

Officers of Instruction

Chairman

David Burnett

Professor

G. Swinton (*Institute of Canadian Studies*)

Associate Professors

C. M. Brown

M.-L. Funke

Assistant Professors

D. le Berrurier

David Burnett

D. Goodreau

M. Sykes

Adjunct Professor

R.H. Hubbard (*National Gallery of Canada*)

Lecturer

G. Scott

Slide Curator

G. Scott

General Information

The Department's offerings range from beginning survey courses to advanced courses leading to the Bachelor of Arts Major and Honours degrees as well as a Master of Arts program in Canadian Art, offered through the Institute of Canadian Studies.

The emphasis of courses given in the Department is on the history of art. Students who plan to Major in this Department after transferring from St. Patrick's College are advised that credit towards the Major can be given only for the Art History element of the St. Patrick's Art courses.

Students who wish to pursue programs in museum training on the post-graduate level are advised that courses in general chemistry are strongly recommended.

Courses Open to First Year Students

The following courses are open to First year students:

Art History 11.100, 11.110, 11.200 ★, 11.210 ★, 11.220 ★, 11.230 ★, 11.240 ★, 11.250 ★, 11.260 ★.

Major Programs

Major in Art History

Major in Art History consists of six full-course credits in Art History, courses which must be chosen in consultation with members of the Department. There is little distinction made between First and Second year courses in the Department. The following are basic "core" courses:

Art History 11.200 ★, 11.210 ★, 11.220 ★, 11.230 ★, 11.240 ★, 11.250 ★, 11.260 ★.

In most cases there are more specialized courses on the 300 level, following upon these basic courses. The normal sequence of courses for a Major is six half-course credits at the 200 level and three full course credits at the 300 level. Students going into their Third year, wishing to register for 300-level courses without having had the prerequisite 200-level preparatory course, are advised that admission is conditional upon the permission of the instructor.

Combined Majors

For Major students combining Art History with another subject, the general rule is that they must include at least four full-course credits in Art History, of which one must be at the 300 level.

Honours Programs

Honours in Art History

The Honours program comprises twenty full-course credits after Grade 13, of which a minimum of nine full course credits must be in Art History.

1. For the First, Second and Third year programs refer above to the course pattern outlined in the section *Major in Art History*.

2. Honours students in the Fourth year must take three or four Art History courses at the 400 level, including Art History 11.490.

3. Students will be required to demonstrate a proficient reading knowledge of either French, German, Italian, or another language if relevant to their program. The written examination may be waived if the student has attained a grade of B- or higher in a 100 level course in the language. If graduate study is contemplated, a second language is strongly recommended. Normally, graduate programs in Art History require reading proficiency in French and German and in a third language for the doctoral level.

Combined Honours

For Honours programs combining Art History with another subject, the minimum requirement is seven full-course credits, chosen in consultation with the Department, and of which Art History 11.490 must be included.

Courses Offered

Art History 11.100

A Survey of the History of Art

This course is recommended as an Arts option for students of other faculties and for liberal arts students other than Art History majors. Emphasis will be placed on the analysis of painting, sculpture and architecture from prehistory to the present in order to explain problems and attitudes that were typical of major periods.

Evening division: Lectures three hours a week.

G. Scott

Art History 11.110

An Introduction to Architectural History

This course is designed both for Art History Majors and for liberal arts students. The architectural history of Europe and North America will be outlined through a discussion of the major stylistic periods and monuments. The relationship between structure, function and form in architecture will be emphasized.

Day division: Lectures three hours a week.

M. Sykes

Art History 11.200 ★

An Introduction to Canadian Art

This course will examine aspects of painting, sculpture, architecture and decorative arts in Canada from the beginning of the European settlement to the present.

Evening division, First term: Lectures three hours a week.

M. Sykes

Art History 11.210 ★

Ancient Art

This course will consider the development of Mesopotamian, Egyptian, Greek and Roman art to Constantine. It is recommended that this course be taken before Art History 11.220 ★

Day division, First term: Lectures three hours a week.

D. le Berrurier

Art History 11.220 ★

Western Medieval Art

The development of Western medieval art from the earliest Christian productions through the late Gothic period will be studied, with some reference to Eastern medieval art for purposes of comparison. It is recommended Art History 11.210 ★ be taken prior to this course.

Evening division, Second term: Lectures three hours a week.

D. le Berrurier

Art History 11.230 ★

Renaissance Art

This course is designed to survey painting, sculpture and architecture in Italy and in Northern Europe from the fourteenth century through the first quarter of the sixteenth century.

Day division, Second term: Lectures three hours a week.

C.M. Brown

Art History 11.240 ★

Mannerist and Baroque Art

This course is designed to survey the principal artists and movements of sixteenth and seventeenth century Europe. Particular emphasis will be given to Italy, France and the Netherlands.

Day division, Second term: Lectures three hours a week.

D. Burnett

Art History 11.250 ★

Rococo and Romantic Art

This course will study the development of the Rococo style in France, Italy and England, and will investigate the emergence and development of Romanticism.

Day division, Second term: Lectures three hours a week.

D. Goodreau

Art History 11.260 ★

Modern Art

This introductory course to European and North American art of the late nineteenth and the twentieth centuries will emphasize the major artistic personalities of the period.

Day division, First term: Lectures three hours a week.

D. Burnett

Art History 300 ★

Canadian Painting

This course will study selected problems in Canadian painting. The particular problems and personalities will be determined by the instructor.

Prerequisite: Art History 11.200 ★ or permission of the instructor.

Day division, Second term: Lectures three hours a week.

M. Sykes

Art History 11.305 ★

Canadian Architecture

This course will study selected problems in Canadian architectural history. The particular problems and personalities will be determined by the instructor.

Prerequisite: Art History 11.200 ★ or permission of the instructor.

Day division, First term: Lectures three hours a week.

M. Sykes

Art History 11.307 ★

Eskimo Art

This course will study the iconographic, form-giving, and esthetic attitudes in 2,800 years of Eskimo art in its two and three dimensional aspects with the emphasis on the art of the Canadian Arctic.

Prerequisite: A full course credit in Art History or permission of the instructor.

Evening Division: Lectures two hours a week.

G. Swinton

Art History 11.310

Classical Art and Archaeology

Offered in the Department of Classics as Classical Civilization 13.330.

Art History 11.320 ★

Byzantine Art

This course will examine the sources and the development of the arts in the Byzantine Empire as well as the influence of these artistic productions on those of neighbouring countries and Western Europe.

Prerequisite: Art History 11.210 ★ or 11.220 ★, or permission of the instructor.

Day division, First term: Lectures three hours a week.

D. le Berrurier

Art History 11.325 ★

Russian Art

The development of Russian art will be studied from its origins through the sixteenth century with an emphasis on Byzantine influences as opposed to local characteristics.

Prerequisite: Art History 11.220 ★ or 11.320 ★, or permission of the instructor.

Day division, Second term: Lectures three hours a week.

D. le Berrurier

Art History 11.327

Gothic Art

The development of Gothic art in Northern and Southern Europe from its origins in the twelfth century through the fifteenth century will be investigated.

Prerequisite: Art History 11.220 ★ or permission of the instructor.

Not offered 1975-76.

Art History 11.330 ★

Florentine Renaissance Art: Masaccio through Raphael

This course will examine Florentine art in its development from late Trecento ideas to the emergence of the High Renaissance vocabulary.

Prerequisite: Art History 11.230 ★ or permission of the instructor.

Day division, First term: Lectures three hours a week.

C.M. Brown

Art History 11.335 ★

Northern Renaissance Art: Van Eyck through Dürer

This course will examine the development of Flemish and

German Renaissance art.

Prerequisite: Art History 11.230 ★ or permission of the instructor.

Not offered 1975-76.

Art History 11.350

English Art and Architecture

The theory and practice of art and architecture in England from the age of Van Dyck and Inigo Jones through that of the Pre-Raphaelite Brotherhood will be studied.

Prerequisite: Art History 11.250 ★ or permission of the instructor.

Day division: Lectures three hours a week.

D. Goodreau

Art History 11.360 ★

Painting in France: 1863-1906

The origins of twentieth century art will be examined through the careers of the principal Impressionist and Post-Impressionist artists: Manet, Monet, Cézanne, Seurat and Gauguin.

Prerequisite: Art History 11.260 ★ or permission of the instructor.

Day division, First term: Lectures three hours a week.

C.M. Brown

Art History 11.365

Art 1900-1970: Selected Topics

This lecture and discussion course will examine in depth the art and ideas of selected groups and individual artists who have shaped the art of the twentieth century.

Prerequisite: Art History 11.260 ★ or permission of the instructor.

Evening division: Lectures three hours a week.

D. Burnett

Art History 11.370

Art Historical Problems

This seminar allows Art History Majors to pursue intensively such problems as iconography, attribution, bibliography, restoration, forgery, materials and media.

Prerequisite: Permission of the instructor.

Not offered 1975-76.

Art History 11.380 ★

Secular Iconography: Pagan Themes in Western Art

This course will analyze and categorize the various ways in which Greco-Roman themes were used in Medieval, Renaissance and Baroque art.

Prerequisite: Permission of the instructor.

Evening division, Second term: Lectures three hours a week.

C.M. Brown

Art History 11.385 ★

Religious Iconography: Biblical Themes in Western Art

This course will explore the textual and the visual traditions underlying selected Old and New Testament themes in Medieval, Renaissance and Baroque art.

Prerequisite: Permission of the instructor.
Not offered 1975-76.

Art History 11.399

Summer Studies In Europe: Paris

This course will allow the student an opportunity to study a select group of monuments in Paris and its environs.
Prerequisite: Three full credit courses in Art History or permission of the Department.

Art History 11.407★

Eskimo Art Studies

This course will examine the prehistoric, historic and contemporary art forms, materials and attitudes of Eskimos in Alaska, Canada and Greenland through bibliographic and methodological studies.
Day division, First term: Three hours a week.
G. Swinton

Art History 11.420★

Early Christian and Byzantine Ivories

This course will focus on the origins of the ivory carving tradition and the various types of secular and religious productions from the earliest examples through the sixth century.
Evening division, First term: Three hours a week.
D. le Berrurier

Art History 11.427★

Carolingian Art

This course will focus on the sources and the characteristics of the Carolingian Revival. Special emphasis will be given to manuscript illustration.
Not offered 1975-76.

Art History 11.430★

Italian Renaissance Sculpture

This course will focus on the major sculptors of fourteenth and fifteenth century Italy, with special attention being given to Nicola and Giovanni Pisano, Andrea Pisano, Ghiberti, Donatello, Luca della Robbia and Michelangelo.
Day division, Second term: Three hours a week.
C.M. Brown

Art History 11.435★

North Italian Art of the Renaissance

This course will explore the contributions made to the Renaissance vocabulary by artists from Ferrara, Verona, Venice and Padua and, accordingly, will focus on the careers of Pisanello, the Bellini, Mantegna, Tura and Cossa.
Not offered 1975-76.

Art History 11.437★

Renaissance Methodology

This course permits the student to concentrate on problems of methodology: definitions and theories of the Renaissance, the relevance of primary sources and problems of textual and visual interpretation.

Not offered 1975-76.

Art History 11.450★

English Painting: Hogarth to Gainsborough

This course will study the rise and development of the English school of painting. Attention will be focused on the achievements of Hogarth, Reynolds, Gainsborough and other late eighteenth-century English artists.
Evening division, Second term: Three hours a week.
D. Goodreau

Art History 11.455★

English Landscape Painting

This course will investigate the development of English landscape painting in oil and watercolour, beginning in the mid-eighteenth century and culminating in the art of Constable and Turner.
Day division, First term: Three hours a week.
D. Goodreau

Art History 11.457★

The Pre-Raphaelites

The painting of the Pre-Raphaelite Brotherhood and some contemporaries will be studied: special attention will be given to sources, principles and historical background.
Not offered 1975-76.

Art History 11.460★

Twentieth Century Art Theory and Criticism

In this course the place of the critic and of the artist as theorist will be examined in relation to the painting and sculpture of the twentieth century.
Not offered 1975-76.

Art History 11.465★

Paul Klee and German Expressionism

The art and ideas of Paul Klee will be discussed within the context of the German Expressionist movement.
Not offered 1975-76.

Art History 11.490

Critical Readings in Art History

This course is required of candidates for Honours in Art History in their last year. Emphasis will be placed on bibliography and methodology. Supervised readings prepare the student for a comprehensive examination.
Prerequisite: Permission of the Department.
Day Division.
Members of the Department

Art History 11.499

Honours Research Essay

This course is open only to those Honours students who have consistently maintained a high standing in their program. An essay of approximately 10,000 words is the usual assignment.
Prerequisite: Permission of the Department.
Day division.
Members of the Department

General Information

In addition to offering Honours and Major B.Sc. degrees, the Biology Department also offers a Major B.A. degree. Students reading for this degree must arrange their courses, in consultation with the Chairman or Associate Chairman of the Department, in one of the patterns outlined below.

Bachelor of Arts Major program in Biology

1. Six Biology courses to include 61.100 or 61.101, 61.200, 61.215, 61.220 ★, 61.360, 61.391 ★ ;
2. Chemistry 65.100;
3. One additional science course not in Biology;
4. Four other courses in the Arts Faculty to include at least three from one department;
5. Three free options, one of which must be at an advanced level.

Bachelor of Arts Combined Major program in Biology

1. Five Biology courses, 61.100 or 61.101, 61.200, 61.215, 61.220 ★, 61.360, 61.391 ★ ;
2. Chemistry 65.100;
3. One additional science course not in Biology;
4. The requirement for a combined major in an Arts department;
5. Three or four free options.

For complete information on programs and courses offered by the Department of Biology see pp. 331-337.

Department of Classics

Officers of Instruction

Chairman

D.G. Beer

Professors

A. Trevor Hodge

F. Ellenor M. Swallow

Associate Professors

T.R. Robinson

M.E. Welsh

Assistant Professors

D.G. Beer

R.C. Blockley

A. Fotiou

R.L. Jeffreys (*St. Patrick's College*)

General Information

The discipline of Classics is divided into three main fields: Latin, Greek, and Classical Civilization. By "Latin" and "Greek" are meant works of Latin and Greek literature studied in the original tongue, not in translation; "Classical Civilization" covers all non-linguistic studies in classical antiquity, such as ancient history and literature in translation.

Honours and Major programs exist in Latin alone and Greek alone, but not in Classical Civilization alone. Combined Honours and Combined Major programs are available in a combination of any two of the three fields, i.e., Latin and Greek, Latin and Classical Civilization, Greek and Classical Civilization. Combined Honours and Combined Major programs can also be arranged combining any of the three with work in another department (for example, History and Classical Civilization; Latin and French) upon consultation with the department chairmen concerned.

Major Programs

Major in Greek

Five Greek courses and Classical Civilization 13.290.

Major in Latin

Five Latin courses and Classical Civilization 13.291.

Combined Majors

Greek and Classical Civilization

Four Greek courses and four Classical Civilization courses.

Latin and Classical Civilization

Four Latin courses and four Classical Civilization courses.

Greek and Latin

Four Greek courses and four Latin courses.

Combined Major with Another Department

Combined Majors can be arranged with other departments. In addition to the requirements of the other department (for which the student should consult its chairman), one of the following will be required:

Greek:

Four Greek courses and Classical Civilization 13.290.

Latin:

Four Latin courses and Classical Civilization 13.291.

Classical Civilization:

Five Classical Civilization courses.

All courses are to be chosen in consultation with the Department.

Note: A general examination, written or oral, will be given to all students in the final year of a Major program in addition to the regular course examinations. Students are advised that a list of recommended reading to assist them in preparing for this examination is available upon application to the Department.

Honours Programs

Honours in Greek

Seven Greek courses and Classical Civilization 13.290.

Honours in Latin

Seven Latin courses and Classical Civilization 13.291.

Combined Honours

Greek and Classical Civilization

Seven Greek courses, four Classical Civilization courses and Latin 16.015 or 16.100.

Latin and Classical Civilization

Seven Latin courses, four Classical Civilization courses and Greek 15.015 or 15.100.

Greek and Latin

A minimum of twelve courses out of twenty is required. These may be built up in various combinations to produce differing degrees of emphasis on the two languages. Acceptable combinations are:

Six Greek courses and six Latin courses;

Seven Greek courses and five Latin courses;

Five Greek courses and seven Latin courses;

Five Greek courses, five Latin courses and two Classical Civilization courses.

Combined Honours with Another Department

Combined Honours can be arranged with other departments. In addition to the requirements of the other department (for which the student should consult its chairman), one of the following will normally be required:

Greek:

Six Greek courses and Classical Civilization 13.290.

Latin:

Six Latin courses and Classical Civilization 13.291.

Classical Civilization:

Six Classical Civilization courses including either Classical Civilization 13.428 or 13.429.

At the end of an Honours course, students will be required to take a comprehensive examination, written or oral, to test their general knowledge in the field of Classics. Although no specific grade will be assigned here, a student will not be recommended for the degree unless he or she has passed this examination satisfactorily. Also, it will be taken into consideration, along with all work done in the Classics Department, in the awarding of first, high second, second or third class Honours. Students are advised that a list of recommended reading to assist them in preparing for this examination is available upon application to the Department.

Note: In all the above prescriptions, Major and Honours, unless stated otherwise the term "Greek courses" and "Latin courses" should be understood to refer to courses at the 100 level and higher. Students with no previous knowledge of the language will need to take in addition Greek 15.015 or Latin 16.015 as a prerequisite for admission to the 100 level and this course will normally count toward their degree as one of their options.

Graduate Program

The Department of Classics offers studies leading to the degree of Master of Arts. For further details consult the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered**Greek 15.015****Introduction to Language and Reading**

A beginning course to introduce students not only to grammar and syntax, but also to the reading of continuous prose.

Day division: Lectures and practice periods four hours a week.

A.T. Hodge

Greek 15.100**First Year Greek: Reading and Prose Composition**

A study of the *Alcestis* of Euripides and the *Orations* of Lysias. Some time will also be devoted to prose composition.

Prerequisite: Greek 15.015 or equivalent.

Day division: Lectures three hours a week.

T.R. Robinson

Greek 15.200**Second Year Greek: Literature and Sight Translation**

A study of selected passages from major authors such as Homer and Thucydides, and the *Memorabilia* of Xenophon. Time will also be devoted to sight translation.

Prerequisite: Greek 15.100 or equivalent.

Day division: Lectures three hours a week.

R.C. Blockley, T.R. Robinson

Greek 15.300**The Orators**

Reading of representative speeches of the fourth century orators with attention to style and historical background. Prerequisite: Greek 15.200 or the equivalent, or permission of the Department.

Day division: Three tutorial hours a week.

A.S. Fotiou

Greek 15.390**An Author in Depth**

This is a course designed for students with special interests and will not be offered in regular rotation with other courses.

Greek 15.420

The Historians

Reading in Herodotus and Thucydides and a study of the development of historical form and method in the ancient world.

Prerequisite: Greek 15.200 or the equivalent, or permission of the Department.

Day division: Three tutorial hours a week.

A.T. Hodge, R.L. Jeffreys

Other Greek courses to be offered in rotation in coming years are:

Greek 15.310

The Tragedians

Greek 15.320

Homer

Greek 15.330

The Philosophers

Greek 15.400

Comedy

Greek 15.410

Lyric and Elegy

Latin 16.015

Beginning Latin

A course for students with no previous knowledge of Latin and designed to introduce them not only to the grammar and syntax of the language but also to the reading of continuous prose.

Day division: Lectures and practice periods four hours a week.

A.S. Fotiou

Latin 16.100

First Year Latin: Reading and Prose Composition

Selected readings from authors particularly valuable for the light they throw on Roman society, especially in the Silver Age. Time will also be devoted to prose composition.

Prerequisite: Grade 12 Latin, Latin 16.015, or equivalent.

Day division: Lectures three hours a week.

F.E.M. Swallow

Latin 16.200

Second Year Latin: The Golden Age

A study of Cicero, Virgil, Livy, and Horace—the major writers of the Golden Age of Latin literature. Time will also be devoted to practice in sight translation.

Prerequisite: Latin 16.100.

Day division: Lectures three hour a week.

D.G. Beer

Latin 16.391

An Author in Depth

This is a course designed for students with special interests and will not be offered in regular rotation with other courses.

Latin 16.410

Satire

Readings in Horace, Juvenal, Persius, Petronius. The study of Satire as a native genre.

Prerequisite: Latin 16.200 or permission of the Department.

Day division: Three tutorial hours a week.

R.C. Blockley, T.R. Robinson

Latin 16.420

Roman Oratory

A study of Roman political and forensic oratory, both in theory and in practice.

Prerequisite: Latin 16.200 or permission of the Department.

Day division: Three tutorial hours a week.

F.E.M. Swallow

Other Latin courses to be offered in rotation in coming years are:

Latin 16.300

Virgil and Epic

Latin 16.310

Lyric and Elegy

Latin 16.320

Philosophy

Latin 16.330

Drama

Latin 16.400

The Historians

Classical Civilization 13.100

Some Aspects of Greek and Roman Civilization

An introduction to classical Greek and Roman antiquity which will discuss topics characteristic of the two civilizations. It is especially recommended for students from other faculties who desire an Arts option, or for Arts students whose interest is general rather than specifically historical. There will be appropriate readings from classical authors in English translation.

Day and Evening divisions: Lectures two hours a week.

D.G. Beer

Classical Civilization 13.209

Greek and Latin Literary Genres

A study through English translation of the various genres of Greek and Latin literature, especially those which influenced later European writings: epic, drama, the ode, pastoral poetry, satire. (Also listed as English 18.209.)

Day and Evening divisions: Lectures two hours a week.
T.R. Robinson

Classical Civilization 13.231

Methods and Techniques of Archaeology

The interrelation of archaeology and anthropology, history, classics, art history, etc. Techniques of field archaeology such as stratigraphy, air photography, surveying, Carbon 14, typology and seriation, underwater archaeology, laboratory analysis; and the organization and administration of a major excavation.
 Evening division: Lectures two hours a week.

Classical Civilization 13.235

Ancient Science and Technology

The development of science and technology in the ancient world and their practical application in such fields as ancient engineering, machinery, metallurgy, transport, building, agriculture and Hippocratic medicine: the position of the craftsman and artisan in society, the attitude of the intellectuals to science and manual labour, and the effect upon technological development of the institution of slavery. This course is suitable for students with no previous knowledge of Greece or Rome.

Evening division: Lectures two hours a week.
A.T. Hodges

Classical Civilization—Ancient History 13.290

History of Ancient Greece: the Classical Period

The history of Classical Greece from the Persian Wars to the conquest of Asia by Alexander the Great. Particular attention will be paid to the age of Pericles. (Also listed as History 24.290.) It is particularly intended for Majors and Honours students in Classics and History or for other students who wish to study in depth and detail the core period of Classical Greece.

Evening division: Lectures two hours a week.
A.S. Fotiou

Classical Civilization—Ancient History 13.291

History of Ancient Rome: Late Republic—Early Empire 133 B.C.—696 A.D.

A study of the events, processes and conditions which led to the fall of the Republic, the establishment of the Principate of Augustus and the development of imperial policies under the Julio-Claudians and Flavians to the death of Domitian. (Also listed as History 24.291.) It is particularly intended for Majors and Honours students in Classics and History or for other students who wish to study in depth and detail the core period of Classical Rome.

Day division: Lectures two hours a week.
R.L. Jeffreys

Classical Civilization 13.300

Classical Mythology

A study through their myths of the people who made them; the connections of myth with religion, art, and literature, and through these its influence on cultural

expression after classical times.

Day division: Lectures two hours a week.
F.E.M. Swallow

Classical Civilization—Ancient History 13.301

The Hellenistic Age

Not offered 1975-76.

Classical Civilization—Ancient History 13.302

Late Roman History: Fourth and Fifth Centuries A.D.

A study of the history of the later Roman Empire of the fourth and fifth centuries A.D. The course will concentrate upon the development of the political system shaped by Diocletian and Constantine I and the problems with which it had to deal—military and economic weakness; religious rivalries; social unrest; German encroachment.

Day division: Lectures two hours a week.
R.C. Blockley

Classical Civilization 13.305

Sites and Civilization

An examination of the geography, political and social history of some of the more important sites of classical antiquity together with a study of the material remains and literary and cultural phenomena associated with each.

Prerequisite: Permission of the Department. It will be necessary for students to demonstrate at the beginning of the course a thorough knowledge of the outlines of Greek and/or Roman history. Credit in Classical Civilization 13.100 or 13.290 or 13.291 will be advantageous.
 Day division: Lectures two hours a day, visits to sites and museums. (Summers only.)
 Not offered Summer, 1975.

Classical Civilization 13.310

Greek Literature in Translation

The development of Greek literature and literary forms from Homer to the Hellenistic period, with extensive reading of Greek authors in English translation.
 Not offered 1975-76.

Classical Civilization 13.311

Latin Literature in Translation

The development of Latin literature and literary forms from the earliest times to the early Empire, with extensive reading of Latin authors in English translation.
 Not offered 1975-76.

Classical Civilization 13.320

Ancient Society

A survey of ancient religion, politics, law, trade, slavery, education and other institutions characteristic of Greek and Roman society.

Day division: Lectures two hours a week.
R.C. Blockley

Classical Civilization 13.330

Classical Art and Archaeology

A study of the material remains of the ancient world from Minoan Crete and early Greece to the Roman Empire, with special attention to pottery, sculpture, painting and architecture.

Day division: Lectures two hours a week.

A.T. Hodge

Summer 1977

15.015, 13.100, 13.209, 13.291, 13.305 or 13.333.

Evening 1977-78

13.100, 13.231, 13.235, 13.290.

Summer 1978

15.015, 13.100, 13.209, 13.290, 13.305 or 13.333.

Classical Civilization 13.333

Monuments of Rome

A study on the site in Italy of the principal antiquities of ancient Rome and the surrounding region, including Naples and Paestum. (Summers only.)

Not offered 1975.

Evening 1978-79

13.100, 13.231, 13.291, 13.330.

Classical Civilization 13.428

Selected Topics in Greek and Roman Literature

In this course two or three individual literary works from Greek and Roman antiquity will be subjected to detailed study. It is intended primarily for students taking at least part of their Honours or Major program within the Department. Special Topic for 1975-76: "Epic Poetry".

Prerequisite: Permission of the Department.

Day division: Seminar two hours a week.

F.E.M. Swallow

Classical Civilization 13.429

Selected Topics in Greek and Roman History

Also listed as History 24.429 and intended for Honours students in History and in Classics who should normally be in their Third or Fourth year. Special topic for 1975-76: "The Byzantine Age".

Prerequisite: Permission of the Department.

Day division: Seminar two hours a week.

A.S. Fotiou

Courses Offered at St. Patrick's College

Classics

05.110 Greek and Roman Civilization

05.202 History of Comedy and Satire

05.344 Women in Antiquity

Courses Planned for Summer School and Evening Division 1975-79

Summer 1975

15.015, 13.100, 13.209, 13.291.

Evening 1975-76

13.100, 13.209, 13.231, 13.235, 13.290.

Summer 1976

15.015, 13.100, 13.209, 13.290, 13.305 or 13.333.

Evening 1976-77

13.100, 13.231, 13.291, 13.330.

School of Commerce

For details of the program offered by the School see pp. 65-66.

Courses Offered

Accounting

See pp. 71-72.

Management Studies

Management Studies 42.250 ★

Business Finance

A study of business firms' financing and dividend policy decisions, cost of capital and short-term asset management problems. (Also listed as Economics 43.250 ★.)

Prerequisites: Economics 43.100 or 43.101, and Accounting 41.100 or Accounting 41.101 ★ / 41.102 ★.

Day and Evening divisions, Second term: Lectures two hours a week.

Summer 1975, Evening division: Lectures five hours a week.

Management Studies 42.308 ★

Introduction to Marketing

An examination of the application of economic analysis for marketing decisions. A study of product policy, pricing policy and advertising policy so as to define decision rules for the firm. (Also listed as Economics 43.408 ★.)

Prerequisite: Economics 43.200 or 43.201 ★.

Day and Evening divisions, First term: Lectures two hours a week.

Management Studies 42.357 ★

Introduction to Industrial Relations

An introduction to industrial relations covering such topics as: industrial relations systems, the functioning of trade unions, collective bargaining in Canada and Canadian public policy in industrial relations (Also listed as Economics 43.357 ★.)

Prerequisite: Economics 43.100 or 43.101.

Day and Evening divisions, First term: Lectures two hours a week.

Management Studies 42.358

Organization Theory

The concepts of organization theory and a study of the problems of organization design and operation. (Also listed as Economics 43.358.)

Prerequisite: Sociology 53.100 or Psychology 49.100, Economics 43.100 or 43.101, or permission of the instructor.

Day and Evening divisions: Lectures two hours a week.

Management Studies 42.404 ★

Operations Research I

Linear programming, networks, and such techniques as PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method). (Also listed as Economics 43.404 ★.)

Prerequisite: Mathematics 69.101.

Day division, First term: Lectures two hours a week.

Management Studies 42.405 ★

Operations Research II

Dynamic programming inventory models, queuing, simulation, non-linear programming. (Also listed as Economics 43.405 ★.)

Prerequisite: Management Studies 42.404 ★ or equivalent, Economics 43.220.

Day division, Second term: Lectures two hours a week.

Management Studies 42.406 ★

Applied Economics: Finance

A study of the application of micro-economic theory to problems of accumulation and allocation of wealth by individuals and firms. (Also listed as Economics 43.406 ★.)

Prerequisites: Economics 43.200 or 43.201 ★, 43.220, Management Studies 42.250 ★.

Day division, First term: Lectures two hours a week.

Management Studies 42.407 ★

Applied Economics: Production

An examination of the decision rules for planning production, work force, inventory and for optimal response to sales fluctuations. (Also listed as Economics 43.407 ★.)

Prerequisites: Economics 43.200 or 43.201 ★, and 43.220. Economics 43.220 may be taken concurrently.

Evening division, Second term: Lectures two hours a week.

Management Studies 42.409

Statistical Decision Theory

An examination of Bayesian and classical approaches to decision making under uncertainty for individuals and firms. (Also listed as Economics 43.409.)

Prerequisites: Economics 43.220 and Mathematics 69.101.

Not offered 1975-76.

Management Studies 42.410 ★

Finance and Capital Markets

The workings and structure of Canada's capital markets with particular reference to differing classes of institutional lenders and borrowers; relationships of non-bank financial intermediaries to the banking system, regulatory agencies and the public, the impact of these institutions on corporate financial and national economic policy, access to foreign capital markets and external financing of Canadian economic development. (Also

listed as Economics 43.410 ★.)

Prerequisite: Economics 43.210 or 43.211 ★.

Evening division, First term: Lectures and seminars two hours a week.

Management Studies 42.411 ★

Investments

A survey of investment principles and practice. Emphasis is given to problems of security analysis and portfolio management with special attention to the investment problems of the individual investor. (Also listed as Economics 43.411 ★.)

Prerequisite: Management Studies 42.250 ★.

Day division, Second term: Lectures and seminars two hours a week.

Management Studies 42.418 ★

Market Forms and Marketing Strategies

The relationship between market structure and corporate strategy in the Canadian economy. Marketing behaviour as influenced by the size structure of firms and the changing nature of the modern corporation. (Also listed as Economics 43.418 ★.)

Prerequisite: Management Studies 42.308 ★.

Day and Evening divisions, First and Second terms: Lectures two hours a week.

Management Studies 42.460 ★

Topics in Management Studies

Consideration of selected topics in financial management, marketing, production, etc.

Prerequisite: Permission of the School.

Day division, One term: Two hours a week.

Management Studies 42.490 ★

Business Policy Seminar

This course focuses upon the management process in business. It examines the functions and responsibilities of managers in the areas of strategy formulation and implementation. It is designed to integrate previous work in the functional disciplines of business administration by developing an overall analytical viewpoint.

Prerequisite: Fourth year Honours Commerce standing.

Day division, Second term: Two hours per week.

Members of the Committee

Chairman

To be announced

Members

G. Paquet, *Dean, Faculty of Graduate Studies*
 R.A. Wendt, *Dean, Faculty of Arts, Division II*
 M. LaFrance, *Dean, Faculty of Arts, Division I*
 J.B. Dallett (*German*)
 J. Goheen (*German*)
 W. Grebenschikov (*Russian*)
 W. Krynski (*French and Comparative Literature*)
 E. Kushner (*French and Comparative Literature*)
 C. Levenson (*English*)
 C.A. Marsden (*Spanish*)
 K. O'Donnell (*English*)
 H.-G. Ruprecht (*Comparative Literature*)
 S. Sarkany (*French*)
 P. Van Ruten (*French*)
 P. Varnai (*Russian*)

Associate Members

G.R. Barratt (*Russian*)
 D.G. Beer (*Classics*)
 M. Ciavolella (*Italian*)
 A. Elbaz (*French*)
 C. Fleischauer (*French*)
 R. Galliani (*French*)
 F.B. Westburg Gildenhuys (*English*)
 J.J. Healy (*English*)
 G.B. Johnston (*English*)
 E.F. Kaye (*French*)
 R. Larson (*Spanish*)
 P. Laurette (*French*)
 R.L. McDougall (*English*)
 G. Melnikov (*Russian*)
 B. Mogridge (*German*)
 E. Swallow (*Classics*)
 J.S. Tassie (*French*)
 Student Representatives

General Information

The Comparative Literature Committee offers a program of graduate study leading to the degree of Master of Arts. While the Committee makes available some of its courses as options for qualified undergraduates and graduates who are registered in other disciplines and are appreciative of the broader perspectives offered by Comparative Literature, its main purpose is to provide courses for graduate students wishing to specialize in Comparative Literature.

The purpose of the Comparative Literature program is to study literature in its international context, and to relate and compare literary phenomena usually studied

in isolation because of linguistic barriers and the traditional departmental division of academic disciplines. Thus, taking into account the interrelation of all humanistic studies such as the various literatures, philosophy, psychology, sociology, the visual arts and history, "comparatists" view literary creation within the total complex evolution of world literature. The historical flow of literary archetypes, the role of folklore and myth in literature, recurrent problems of literary theory, consideration of the less well known literatures of the world, are some of the objects of Comparative Literature studies.

Students registered in other language departments who wish to enrol in one or more courses in the Comparative Literature program must demonstrate a reading knowledge of the languages required for each course.

Graduate Program

For complete information on admission and course requirements please consult the Graduate Studies and Research Calendar.

Courses Offered

Comparative Literature 17.361

Studies in Literary Genres

Topic: Drama to 1850. A survey of world dramatic literature from the classical period to the end of the Romantic period, with special emphasis on a comparison of the various periods of English drama with other traditions. Certain major dramatic genres will be discussed where relevant, e.g. classical tragedy and comedy, the mystery play, the Japanese Noh drama, the Italian *commedia dell'arte*, neo-classical and romantic forms of drama of the Renaissance, the Restoration comedy of manners, sentimental drama, Romanticism, etc. (Also listed as English 18.304.)

Prerequisites: One language other than English and permission of the instructor.

Not offered 1975-76.

Comparative Literature 17.401

Aspects of Modern World Literature

Topic: Literary Explorations of the Metropolis. The course will examine various forms of narrative response to the problems of modern urban life. It will investigate, for instance, the relationships between significant motifs of the "fourmillante cité" (Baudelaire) and some of the compositional devices which were used by novelists such as Zola, *Les trois villes* (Lourdes, Rome, Paris); London, *The People of the Abyss*; Sinclair, *The Metropolis* (cf. Fritz Lang, Film script "Metropolis"); Bely, *Petersburg*; Rilke, *The Notebook of Malte Laurids Brigge*; Joyce, *Ulysses*; Gide, *Les faux-monnayeurs*; Döblin, *Berlin Alexanderplatz*; Dos Passos, *Manhattan Transfer*;

Moravia, *The Woman of Rome*; Butor, *La modification*; Cortázar, *Rayuela*; Gadda, *Acquainted with Grief*; etc. The results of this investigation will be discussed in the light of relevant philosophical and/or sociological thinking about the urban "reality".

Reference texts: Simmel, "The Metropolis and Mental Life" in K.H. Wolff (ed.), *The Sociology of Georg Simmel*; Weber, *The City*; Louis Wirth, "Urbanism as a Way of Life", in *American Journal of Sociology*, 44 (1938); Henri Lefebvre, *La pensée marxiste et la ville*.

Prerequisites: Proficiency in French and permission of the instructor.

Seminar three hours a week.

Comparative Literature 17.410

Critical Approaches to Literature I: Linguistic Stylistics

This course will examine a number of representative modern novels in the light of recent trends in text linguistics. The course will be limited to semantic and semiotic aspects of modern literary criticism which will lead to a better structural understanding of the literary text seen as an autonomous, internally organized linguistic creation.

Reference texts: J. Kristeva, *Le texte du roman*; R. Barthes, *S/Z*; C. Chabrol, *Sémiotique narrative et textuelle*; *Linguistique et Littérature, Colloque de Cluny*, in: *La Nouvelle critique*, Numéro Spécial (Paris, 1968); A.J. Greimas, *Sémantique structurale*; T. Todorov, *Poétique* in: F. Wahl (ed.), *Qu'est-ce qu'est le structuralisme* (Paris, 1968).

Prerequisite: Good knowledge of French. Students not in Comparative Literature require approval of the instructor. Reading list is available.

Tutorial, Fall and Winter terms.

W. Kryszinski

Comparative Literature 17.420

Critical Approaches to Literature II Historical and Aesthetic

This is a course of comparative literary methodology in which the emphasis will be on the historical and the aesthetic approach to literary works selected from European literatures of the sixteenth and seventeenth centuries. The concepts of humanism and Renaissance, baroque, mannerism, neo-classicism will be examined critically as international literary phenomena, both synchronically and diachronically, so as to attain an ordered view of the periods, movements, trends, and literary schools, which form the literary history of the time. This will help the student understand the complex relationship between the various factors which stimulate literary creation (concepts of "source", "influence", "tradition", "convention", etc.) and the text itself in its uniqueness and autonomy. The historical approach will be related to the aesthetic approach in two complementary ways: first through attention to the changing values, standards and tastes implied in each new phase of the literary history of the periods under study, since each period or movement generates its own aesthetic; second with reference to modern aesthetic theory and

its evaluative techniques as applied to the works studied. Reference texts: Bayer, *Histoire de l'esthétique*; Beardslley, *Aesthetics from Classical Greece to the Present, a Short History*; Highet, *The Classical Tradition*; Jauss, *Literaturgeschichte als Provokation*; Osborne, (ed), *Aesthetics*; Weisstein, *Comparative Literature and Literary Theory*; or Brandt-Corstius, *Introduction to the Comparative Study of Literature*.

Prerequisites: The language prerequisites are those of the Comparative Literature program as a whole. Students not in the Comparative Literature program require approval of the instructor. A reading list is available.

Tutorial, Fall and Winter terms.

E. Kushner

Comparative Literature 17.430

Critical Approaches to Literature III: Psychocritique de la poésie québécoise contemporaine

Etude des structures symboliques et des "thèmes obsédants" dans la poésie de Saint-Denys Garneau, Anne Hébert, Alain Grandbois, Rina Lasnier, Gilles Hénault, Paul-Marie Lapointe, Jacques Brault, Claude Gauvreau et al. et des rapports entre psychologie des profondeurs et écriture chez ces auteurs. En utilisant des concepts tirés de Freud, Jung, E. Jones, Mauryon, Sartre, Merleau-Ponty, Hoffmann, Lacan, Mandel et al. on tentera de systématiser ces analyses individuelles en vue d'une théorie plus générale pour l'étude de la poésie québécoise. Ceci conduira au problème des rapports du psychisme individuel et de la mentalité collective dans l'oeuvre poétique. Eclairantes, les démarches de la psychocritique et de la sociocritique ne se substitueront pourtant pas à l'analyse littéraire proprement dite, mais fourniront à celle-ci des niveaux de lecture.

Comparative Literature students will write essays with an emphasis on the psychological approach and will be encouraged to do contrastive analyses using French-Canadian poems as well as poems from other literatures. Reference texts: Freud, "The theme of the three caskets", *Standard Edition of the Complete psychological works of S. Freud, Volume 13*; Jones, *Hamlet and Oedipus*; Jung, "Psychology and literature", in: *Collected Works Volume 15*; Lacan, *Ecrits*; Mauryon, *Des Métaphores obsédantes au mythe personnel*; Mehlmann, "Entre psychanalyse et psychocritique", *Poétique* 3 (1970), p. 365-385.

Prerequisite: The language of instruction being French an advanced knowledge of French is required. A reading list is available.

Tutorial, Fall and Winter terms.

E. Kushner

Comparative Literature 17.440

Critical Approaches to Literature IV: Sociology of Literature

This course will analyse the relationship between traditional literary criticism and the sociology of literature, especially in the field of Comparative Literature. It will examine the relationship between the writer (and partic-

ularly the novelist), his work and his readers. Concentrating on the sociology of reading, with an emphasis on the Canadian scene, it will study the behaviour of the reading public and its psychological, aesthetic, linguistic or even political tastes and motivations. Through the scrutiny of a number of representative French-Canadian novels, an attempt will be made to determine the importance of the novel as a "social product", and to show the correspondence between its main themes and values and those which are present in the minds of the readers. Finally, the real impact of successful novelists, the reasons of their success and the nature and importance of their public will be considered. As an illustration of this course, at the end of the academic year, the students will conduct the study of a small sample of French-Canadian readers in Hull, Québec, in a specific milieu, in order to determine what kind of novels they read, to explain their choices and their reaction to what they read. This field study will present several advantages in the context of Comparative Literature because of the location of Hull (French and English Canadian cultures and languages). It will familiarize the students with the methodology developed in the Institut de Littérature et de Techniques Artistiques de Masse at the University of Bordeaux.

Reference texts: Goldmann, Lukács et al., *Problèmes d'une sociologie du roman*; Goldmann, *Pour une sociologie du roman*; Escarpit et al., *Le Littéraire et le Social*; ILTAM, *Littérature et Sous-Littérature*; ILTAM, *Le livre et le conscrit*; Zérafra, *Roman et Société*; Dumont and Falardeau, *Littérature et société canadiennes-françaises*; Falardeau, *Imaginaire littéraire et société*.

Prerequisites: Proficiency in French and permission of the instructor.

Tutorial, Fall and Winter terms.

A. Elbaz

Department of Economics

Officers of Instruction

Chairman

N.H. Lithwick

Co-ordinator, St. Patrick's College

R. Neill

Supervisor of Graduate Studies

K.A.J. Hay

Supervisor of Honours Studies

T.K. Rymes

Supervisor of Majors Studies

D. Smith

Professors

T.N. Brewis

J.F. Chant

H.E. English

W.I. Gillespie

N.H. Lithwick

I.A. Litvak (*Joint appointment: School of International Affairs*)

S.J. May

G. Paquet (*Dean of Graduate Studies*)

T.K. Rymes

E.G. West

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C.D. Acland (*Accounting*)

R.L. Carson

R. Caterina (*Accounting*)

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Kanta Marwah

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P. Downing (*Accounting*)

S. Wong

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R. Podruski

G. Trolley

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H.A. Berndt

W. Brownlee (*Accounting*)

B.J. Bryson (*St. Patrick's College*)

J. Chenier

K. Clinton

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W.G. Pilsworth

S.N. Poddar

T. Rochefort

P. Rock

R. Rotenberg

F. Sbrocchi (*Accounting*)

D. Siegal (*Accounting*)

K.H. Simpson

A. Thomas (*Accounting*)

D.A. Thomas

J. Thomson

B. Veinot (*Accounting*)

H.V. Walker (*St. Patrick's College*)

B.A. Westell

General Information

An Introduction to Economic Analysis

The Department of Economics offers two courses in Economics at the introductory level in the First year: Economics 43.100 and 43.101. Economics 43.100 provides an introduction to economic analysis for students who expect to be Majors or Honours in Economics or Commerce, and for students who expect to take some concentration in Economics beyond the introductory level. Economics 43.101 will place a slightly greater emphasis on particular policy issues with a somewhat lesser emphasis on theory than Economics 43.100.

Categories of Courses

1. Economics 43.100 or 43.101, to be taken in First year.
2. Required courses in theory and statistics. Economics 43.200, 43.210 and 43.220.
3. Second or Third year courses. Economics 43.201★, 43.211★, 43.250★, and courses numbered Economics 43.300-43.399.
4. Senior options, courses numbered Economics 43.400-43.485, normally taken in Third or Fourth year (also see Graduate Studies and Research Calendar).
5. Special Honours courses, numbered Economics 43.486-43.499, for Honours students only.

Major Programs

Students seeking admission to the Major or Honours programs in Economics will normally be expected to have credits in Grade 13 Mathematics or the equivalent. Mathematics 69.101 is a requirement in the First year.

Major in Economics

A student will normally be permitted to Major in Economics only if he or she obtained a C- grade in Economics 43.100. A student who has taken Economics 43.101 and obtained a grade of C- or better will be permitted to Major in Economics after the completion of prescribed additional readings in Economics. Students who Major in Economics will take at least six Economics courses: courses in categories 1 and 2, at least one course from category 3, and at least one course from category 4. One of the category 2 courses may be postponed until Third year. The student's program for the Second and Third years must be approved by the Supervisor of Major Studies of the Department.

Combined Majors

A Combined Major, including Economics, requires Economics 43.100 or 43.101, 43.200, 43.210, and one 400-level course in Economics and another Economics course chosen in consultation with the Supervisor of Major Studies.

Honours Programs

Honours in Economics

The Honours program may be entered from an Honours First year in the social sciences (see p. 58) or by transfer from the Major degree program if University regulations

for entry (see p. 58) have been met. The student's program for the Second and subsequent years will be planned in consultation with the Supervisor of Honours Studies of the Department. A minimum of twenty full course credits is required for the degree. University regulations regarding maintenance of Honours standing (see p. 58) apply.

The Honours requirements include Mathematics 69.101 or equivalent, the required courses in categories 1 and 2, one course from category 3, and at least two and a half courses from category 4. In his final year, the student will also fulfill two requirements drawn from category 4, qualitatively different from the others: the Honours Seminar in Modern Classics (43.490) and the Comprehensive Examination (43.499★). An Honours Essay (43.498), in which a grade of at least B- must be attained, may be written to fulfill one and a half credits at the 400 level.

Students who choose to do the Honours Essay (43.498) must have a detailed outline of the Essay approved by their adviser and by the Honours Supervisor before the last day for withdrawal from full courses. In the absence of such an approved outline the Department may require the student to withdraw from the Honours Essay.

For purposes of determining an Honours student's standing at graduation, all Economics courses, except Economics 43.100, will be considered. The comprehensive examination will be given the weight of a half course. If a student has taken more than the minimum number of twenty courses, the lowest grades among optional courses taken over the minimum will be disregarded in computing final standing.

Combined Honours

Students may apply for Combined Honours in Economics and another social science discipline. Consideration will also be given to applications for Combined Honours in Economics and other Major fields in the Faculty of Arts.

A student intending to apply for Combined Honours should consult with the Supervisor of Honours Studies.

Students in a Combined Honours program are normally required to take Mathematics 69.101 or equivalent, the required courses in categories 1 and 2, and one and a half courses in category 4. In their final year, students in Combined Honours must also take the Honours Seminar in Modern Classics (43.490) and the Comprehensive Examination in Economics (43.499★). The Honours Essay (43.498), if required, may be written in Economics to fulfill one and a half credits at the 400 level.

In general, at least six Economics courses beyond the introductory level, at least three of which are at the 400 level, are required to satisfy the Economics requirements for the Combined Honours degree. The minimum of

twenty full courses and the procedures for computing final standing described in the preceding section apply to the Combined Honours degree. The Combined Honours programs in two related fields are described in greater detail below.

Combined Honours in Economics and Political Science

Students intending to follow this program should take Mathematics 69.101 and Economics 43.100 or Political Science 47.100 (or preferably both) in the First year. The choice of courses in subsequent years will be subject to the approval of the two departments. The Honours requirements include at least an additional six courses in Economics and six courses in Political Science, one of which must be Political Science 47.498 or Economics 43.498 to be taken in the student's final year. These will be arranged so that the student may transfer either to full Honours in Political Science or to full Honours in Economics at the end of the Third year if he then wishes to specialize more intensively. Students must also take the comprehensive examination in Economics and meet the language requirements of the Department of Political Science.

Combined Honours in Economics and Mathematics

Students intending to take this program will take seven courses in Economics and nine in Mathematics and satisfy the comprehensive examination in Economics. Each year's program should be determined in consultation with the two departments.

The Economics courses taken shall be: Economics 43.100, 43.200, 43.210, one course from category 3, Economics 43.490 (or, with permission of the Honours Supervisor and the instructor, 43.475), 43.499★, and one and a half additional 400-level courses.

At least seven courses in Mathematics must be taken beyond the First year (if Mathematics 69.102 and 69.112 were taken in the First year), including Mathematics 70.200, 70.210, 70.245★, 70.257★, 70.301★, 70.302★, 70.350 and two other courses at the 300 level or above, at least one of which is at the 400 level.

Combined Honours in Economics and Journalism

Students in this program will be required to complete a total of twenty-one courses.

The Economics courses shall be: Mathematics 69.101, Economics 43.100, 43.200, 43.210, 43.220, 43.490, 43.499★; an approved course in Economic History and one and a half options in Economics at the 400 level.

The Journalism courses shall be: A First year language course, Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421 (or 28.490), 28.498.

The student must pass the comprehensive examination in Economics.

Graduate Program

The Department of Economics offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section p. 217.

Courses Offered

Economics 43.100

Principles of Economics

The course provides a concise and fairly rigorous introduction to the key theoretical concepts of economics. These concepts are developed with a view to being applied to Canadian economic problems such as unemployment and inflation, monopoly control, international trade and foreign ownership, poverty and the distribution of income. The policy implications of these various problems are also discussed.

Day and Evening divisions: Lectures and discussions four hours a week.

Summer 1975, Evening division: Lectures and discussions six hours a week.

Economics 43.101

Contemporary Economic Issues

A discussion of various Canadian economic problems such as unemployment and inflation, monopoly control, international trade and foreign ownership, poverty and the distribution of income. The policy implications of these various problems are also discussed. A number of theoretical concepts are developed as the need arises.

Day and Evening divisions: Lectures and discussions four hours a week.

Summer 1975, Evening division: Lectures and discussions six hours a week.

Economics 43.200

Intermediate Micro-Economic Analysis

The modern analysis of production and distribution with special reference to the determination of the conditions which maximize social welfare. The major courses of departure from the social welfare optimum in a full employment economy, with particular attention to imperfections in competition.

Prerequisite: Economics 43.100 or 43.101.

Day and Evening divisions: Lectures two hours a week.
 Summer 1975, Evening division: Lectures five hours a week.

Economics 43.201★

Introduction to Micro-Economic Theory and Analysis

The main topics in micro-economic theory with illustrations of their application. Not open to students majoring in Economics and Commerce.

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Evening division, First term: Lectures and discussions two hours a week.

Economics 43.210

Aggregate Economic Theory and Policy

An examination of modern macro-economic theory, with special reference to domestic and international monetary theory. A survey of Canadian and international financial institutions and arrangements. A critical examination of macro-economic problems and the policies advocated for their solution.

Prerequisite: Economics 43.100 or 43.101.

Day and Evening divisions: Lectures two hours a week.

Summer 1975, Evening division: Lectures five hours a week.

Economics 43.211★

Introduction to Macro-Economic Theory and Analysis

The main topics in macro-economic theory with illustrations of their application. Not open to students majoring in Economics and Commerce.

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Evening division, Second term: Lectures and discussions two hours a week.

Economics 43.220

Statistical Methods in the Social Sciences

An introduction to statistical inference.

Prerequisites: Mathematics 69.101 or equivalent and one of Economics 43.100, 43.101, Political Science 47.100 or Sociology 53.100, or permission of the instructor.

Day and Evening divisions: Lectures two hours a week, laboratory two hours a week.

Economics 43.250★

Business Finance

A study of business firms' financing and dividend policy decisions, cost of capital and short-term asset management problems. (Also listed as Management Studies 43.250★.)

Prerequisites: Economics 43.100 or 43.101, and Accounting 41.100 or 41.101.

Day and Evening divisions, Second term: Lectures two hours a week.

Summer 1975, Evening division: Lectures five hours a week.

Economics 43.305

Selected Topics in Economic History

Examination of the economic development of selected economies. The countries to be discussed will be outside Europe and North America, e.g. Argentina, Brazil, Japan, Australia, etc.

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Day division: Lectures two hours a week.

Economics 43.310

Economic History of the United States

An examination of the major aspects of the economic history of the U.S.A. from the colonial period to the twentieth century.

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Not offered 1975-76.

Economics 43.315

European Economic History

An examination of the development of economic institutions, especially those aspects of history which may be used to explain the character of the principal economic institutions and practices of the present day. (Also listed as History 24.315.)

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Not offered 1975-76.

Economics 43.321★

National Accounting

An introduction to the modern social accounting framework encompassing the national product accounts, the input-output accounts and national transactions accounts, with emphasis on Canadian practice. Attention will be paid to new developments such as national wealth accounts, constant dollar accounts, productivity measurement and an examination of the social accounts for underdeveloped and socialist countries.

Prerequisite: Economics 43.100 or 43.101.

Not offered 1975-76.

Economics 43.325

The Economic Development of Canada

An examination of the development of the Canadian economy with emphasis on the post-Confederation period. Attention will be focused on the changing patterns of internal and external factor and commodity flows, productivity and technological change. Frequent comparisons with U.S. economic development will be made. (Also listed as History 24.325.)

Prerequisite: One of Economics 43.100, 43.101, History 24.230 or 24.235.

Day and Evening divisions: Lectures two hours a week.

Economics 43.335

Political Economy in the Modern State

An examination of the role of government in the economy with special emphasis on alternate forms of social co-

ordination and the advantages and disadvantages of each form in the Canadian system.

Prerequisite: Economics 43.100 or 43.101.

Evening division: Lectures two hours a week.

Economics 43.340

Problems of Area Development

The problems of depressed areas with particular reference to the Canadian scene. Measures to improve the lot of these areas and the rationale of the underlying public policy.

Prerequisite: Economics 43.100 or 43.101.

Evening division: Lectures and seminars two hours a week.

Economics 43.345

Agricultural Economics

An examination of the agricultural industry in the national economy and in low income societies. The course will emphasize the working out of the basic forces which determine supply-demand for the industry and the functional distribution of income among the factors of production. The place of institutions will be examined and public policy will be critically reviewed.

Prerequisite: Economics 43.100 or 43.101.

Evening division: Lectures and seminars two hours a week.

Economics 43.356★

Introduction to Labour Economics

An introduction to the basic principles of labour economics. Topics covered include: labour markets, the supply of labour, the demand for labour, labour mobility and migration, wage structures, the logic of trade union action, economics of trade unions, the impact of trade unions and selected macro-economic aspects of the labour market.

Prerequisite: Economics 43.100 or 43.101.

Evening division, Second term: Lectures two hours a week.

Economics 43.357★

Introduction to Industrial Relations

An introduction to industrial relations covering such topics as: industrial relations systems, the functioning of trade unions, collective bargaining in Canada and Canadian public policy in industrial relations. (Also listed as Management Studies 42.357★.)

Prerequisite: Economics 43.100 or 43.101.

Day and Evening divisions, First term: Lectures two hours a week.

Summer 1975, Evening division: Lectures two hours a week.

Economics 43.358

Organization Theory

The concepts of organization theory and a study of the problems of organization design and operation. (Also listed as Management Studies 42.358.)

Prerequisite: Sociology 53.100 or Psychology 49.100, Economics 43.100 or 43.101, or permission of the instructor.

Day and Evening divisions: Lectures two hours a week.

Economics 43.360★

Topics in International Economics

Prerequisite: Economics 43.100 or 43.101, or permission of the instructor.

Evening division, First term: Lectures two hours a week.

Economics 43.361★

Introduction to International Trade

An extension of the basic principles of economics to international trade. Topics covered include the theory of international specialization, tariffs and other barriers to trade, trade liberalization and economic integration, international movements of labour and capital, trade and development.

Prerequisite: Economics 43.100 or 43.101.

Day division, First term, Evening division, Second term: Lectures two hours a week.

Summer 1975, Evening division: Lectures five hours a week.

Economics 43.362★

International Monetary Problems

A discussion of the theory and institutions of the international monetary system, and the related balance of payments problems of nation states.

Prerequisite: Economics 43.100 or 43.101.

Day division, First term: Lectures two hours a week.

Economics 43.363★

Introduction to Economic Development

A discussion of the principles of economic development. Application to the problems of the developing countries.

Prerequisite: Economics 43.100 or 43.101.

Day division, Second term: Lectures two hours a week.

Economics 43.364★

Topics in Area Development

Prerequisite: Economics 43.100 or 43.101.

Not offered 1975-76.

Economics 43.365★

The Economics of Planning

This course considers several aspects of the economics of planning.

Prerequisite: Economics 43.100 or 43.101.

Day division, Second term: Lectures two hours a week.

Economics 43.370

The Economics of Socialism

This course examines socialism in economic theory and practice with particular reference to Soviet economic development and to Soviet economic planning and management. The Eastern European experience with the Soviet model and the Yugoslav experiments with forms of market socialism will also be considered.

Prerequisite: Economics 43.190 or 43.101.

Evening division: Lectures and discussions two hours a week.

Economics 43.380★

Topics in Canadian Economic Policy

Economic analysis applied to selected policy areas, issues or institutions. One or more of the following topics may be dealt with: Decision-making by bureaucratic institutions, policy problems arising from poverty, the economics of natural resources and pollution, urban economics.

Prerequisite: Economics 43.100 or 43.101.

Evening division, Second term: Lectures and seminars two hours a week.

Economics 43.390

Computer Technology Applied to Commerce Problems

Introduction to digital computer organization and operations. Programming techniques, stressing the use of FORTRAN IV AND COBOL. Numerical solution to problems of interest in social and management sciences. Simulation of business problems and the use of business strategies. (Also listed as Accounting 41.390).

Prerequisite: Economics 43.220, or permission of the instructor.

Day and Evening divisions: Lectures two hours a week, laboratory two hours a week.

Summer 1975, Evening division: Lectures and laboratory six hours a week.

Economics 43.404★

Operations Research I

Linear programming, networks, and such techniques as PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method). (Also listed as Management Studies 42.404★.)

Prerequisite: Mathematics 69.101.

Day and Evening divisions, First term: Lectures two hours a week.

Economics 43.405★

Operations Research II

Dynamic programming, inventory models, queuing, simulation, non-linear programming. (Also listed as Management Studies 42.405★.)

Prerequisite: Economics 43.404★ or equivalent; Economics 43.220.

Day and Evening divisions, Second term: Lectures two hours a week.

Economics 43.406★

Applied Economics: Finance

A study of the application of micro-economic theory to problems of accumulation and allocation of wealth by individuals and firms. (Also listed as Management Studies 42.406★.)

Prerequisites: Economics 43.200 or 43.201★, 43.220, 43.250★.

Day division, First term: Lectures two hours a week.

Economics 43.407★

Applied Economics: Production

An examination of the decision rules for planning production, work force, inventory and for optimal response to sales fluctuations. (Also listed as Management Studies 42.407★.)

Prerequisites: Economics 43.200 or 43.201★, and 43.220. Economics 43.220 may be taken concurrently.

Evening division, Second term: Lectures two hours a week.

Economics 43.408★

Applied Economics: Marketing

An examination of the application of economic analysis for marketing decisions. A study of product policy, pricing policy and advertising policy so as to define decision rules for the firm.

Prerequisite: Economics 43.200 or 43.201★.

Day and Evening divisions, First term: Lectures two hours a week.

Economics 43.409

Statistical Decision Theory

An examination of Bayesian and classical approaches to decision making under uncertainty for individuals and firms. (Also listed as Management Studies 42.409.)

Prerequisites: Economics 43.220 and Mathematics 69.101.

Not offered 1975-76.

Economics 43.410★

Finance and Capital Markets

The workings and structure of Canada's capital markets with particular reference to differing classes of institutional lenders and borrowers; relationships of non-bank financial intermediaries to the banking system, regulatory agencies and the public, the impact of these institutions on corporate financial and national economic policy, access to foreign capital markets and external financing of Canadian economic development. (Also listed as Management Studies 42.410★.)

Prerequisite: Economics 43.210 or 43.211★.

Evening division, First term: Lectures and seminars two hours a week.

Economics 43.411★

Investments

A survey of investment principles and practice. Emphasis is given to problems of security analysis and portfolio management with special attention to the investment problems of the individual investor. (Also listed as Management Studies 42.411★.)

Prerequisite: Economics 43.250★.

Day division, Second term: Lectures and seminars two hours a week.

Economics 43.415

History of Economic Thought

The crucial achievements in economic theory and doctrine in the nineteenth and twentieth centuries are

studied. Special emphasis is given to the interrelationship between the social environment and economic thought especially to the role of economics in the development of the national state and international institutions.

Prerequisite: One of Economics 43.200, 43.201★, 43.210 or 43.211★, or permission of the instructor.

Day division: Lectures and seminars two hours a week.

Economics 43.418★

Market Forms and Marketing Strategies

The relationship between market structure and corporate strategy in the Canadian economy. Marketing behaviour as influenced by the size structure of firms and the changing nature of the modern corporation.

Prerequisite: Economics 43.408★.

Day division, Second term: Lectures two hours a week.

Economics 43.420

Topics in Economic Analysis

Theoretical and applied economics as it pertains to a set of problems, issues or institutions.

Prerequisites: Economics 43.200 or 43.201★, 43.210 or 43.211★, and permission of the instructor.

Not offered 1975-76.

Economics 43.425

Advanced Economic History

A discussion of methodology applicable to the analysis of economic history. Intensive examination of selected topics in North American and West European economic history.

Prerequisite: One of Economics 43.305, 43.310, 43.315 or 43.325, or permission of the instructor.

Economics 43.430

Industrial Organization and Public Policy

An analysis of the organization of Canadian industry, with reference to associated U.S. industry where necessary. A few representative industries are examined in some detail. Price theory is used to distinguish economic from institutional factors affecting the structure of the economy. Emphasis is laid upon public policies which affect, intentionally or otherwise, the organization and behaviour of industry, e.g., public utility regulation, control of restrictive practices, commercial policy and price supports.

Prerequisite: Economics 43.200 or 43.201★.

Evening division: Lectures and seminars two hours a week.

Economics 43.435

Manpower Economics and Labour Policy

An examination of various theories pertaining to labour and the functioning of labour markets. Discussion of the current body of theory and its historical development. Examination of a number of selected pieces of research material (theoretical and applied) in the general area of manpower economics and labour policy.

Prerequisite: Economics 43.200 or 43.201★.

Day division: Lectures two hours week.

Economics 43.440

Public Finance

A discussion of the theory of public finance and an examination of several empirical attempts to quantify the theory. Some topics of current interest concerning the public sector in the Canadian economy are examined in the light of the theory and empirical findings.

Prerequisite: Economics 43.200 or 43.201★.

Day division: Lectures and seminars two hours a week.

Economics 43.445★

Welfare Economics

An examination of contemporary welfare economics and its applications.

Prerequisite: Economics 43.200 or 43.201★.

Not offered 1975-76.

Economics 43.446★

Economic Dynamics: Growth

An introduction to modern theories of the growth of income. The simple "razor's edge" growth theory of Harrod will lead to an examination of the neoclassical growth theorems. Golden Rules of Accumulation; the role of money in growth and the effects on debtor-creditor position of growth in an open economy will be analysed together with policies for growth and growth paradoxes.

Prerequisite: Economics 43.210 or 43.211★.

Day division, First term: Lectures and seminars two hours a week.

Economics 43.451★

Economic Dynamics: Business Cycles

An analysis of the nature and causes of fluctuations in income, prices and employment. Short-run dynamic models arising from multiplier-accelerator and other economic processes will be examined. Cycle simulation; forecasting, stability conditions; anti-cyclical policy and the problems of maximizing growth without cycles will be discussed.

Prerequisites: One of Economics 43.446★, 43.210 or 43.211★ and permission of the instructor.

Day division, Second term: Lectures and seminars two hours a week.

Economics 43.456

Economic Development

An inquiry into some of the economic problems of the developing countries.

Prerequisites: Economics 43.200 or 43.201★, and 43.210 or 43.211★.

Day division: Lectures two hours a week.

Economics 43.460

International Trade

An examination of the theory of international trade and payments and its applications. The current body of

theory and its historical development are discussed as are a number of attempts to verify and quantify the theory. A number of present-day problems, policies and institutions are examined in the light of the theory and empirical findings.

Prerequisites: Economics 43.200 or 43.201★, and 43.210 or 43.211★.

Day division: Lectures two hours a week.

Economics 43.465

Industrial Relations

An examination of various theories concerning industrial relations systems, human resource utilization and organizational maintenance and stress. Application of the core analytical disciplines (political science and economics) to the study of conflict resolution among management, workers and governments in the pluralistic environment of the firm. The operationality and policy significance of a number of royal commission reports and studies are examined in the light of these various theories of industrial and human relations.

Prerequisite: Economics 43.200 or 43.250★, 43.357★.

Day division: Lectures two hours a week.

Economics 43.466

Monetary Economics

A treatment of contemporary monetary theory emphasizing the theory of the demand and supply for money and the dynamics of monetary disturbances.

Prerequisites: Economics 43.200 or 43.201★, and 43.210 or 43.211★.

Evening division: Lectures two hours a week.

Economics 43.470

Comparative Economic Systems

A discussion of the structure and functioning of economic systems in theory and practice. Some criteria for evaluating economic performance will be proposed. Contemporary economies such as Yugoslavia, France, Japan, China and the U.S.S.R. will be examined.

Prerequisite: Economics 43.200 or 43.201★.

Day division: Lectures two hours a week.

Economics 43.480

Research Seminar In Urban Economics

An inquiry into the internal dynamics of cities and inter-urban relationships primarily through directed research.

Prerequisites: Economics 43.200 or 43.201★, and 43.220.

Day division: Lectures two hours a week.

Economics 43.485

Introduction to Econometrics

Introduction to problems of structural estimation of economic models, single equation estimation and related problems, simultaneous estimation for interdependent systems of linear form, non-linear estimation, Monte Carlo experiments to derive small sample properties of estimators. Some project in structural estimation will be undertaken or assigned.

Prerequisites: Economics 43.200 or 43.201★, 43.220, and Mathematics 69.101, or equivalents.

Evening division: Lectures two hours a week.

Economics 43.490

Honours Seminar in Modern Classics

Students will be expected to read a group of original works in economics selected by faculty member(s) in charge of the seminar. They will meet regularly to discuss these readings, to answer questions orally and to write examinations and/or papers assigned on the topics considered. Open to Fourth year Honours students with permission of the Supervisor of Honours Studies.

Day division: Seminar two hours a week.

Economics 43.492

Tutorial in Economics

An additional tutorial in Economics may be taken subsequent to or concurrently with Economics 43.490.

Prerequisite: Permission of the Supervisor of Honours Studies.

Day division.

Economics 43.498

Honours Essay

A student taking Honours in Economics may write an Honours essay during his final year. This essay will count for one and a half course credits. Students will work under an individual faculty adviser.

Prerequisite: Permission of the Supervisor of Honours Studies.

Economics 43.499★

Comprehensive Examination

Prerequisite: Permission of the Supervisor of Honours Studies.

Courses Offered at St. Patrick's College

Economics

- 01.100 Principles of Economics
- 01.101 Contemporary Economic Issues
- 01.130 Introductory Accounting
- 01.200 Intermediate Micro-Economic Theory
- 01.210 Aggregate Economic Theory and Policy
- 01.220 Statistical Methods in Economics
- 01.236 Development of the Welfare State
- 01.300 Labour Economics
- 01.304 Public Finance
- 01.320 International Economics
- 01.325 Canadian Economic History
- 01.330 Social Economics
- 01.343 Special Studies in Canadian Economics
- 01.344★ History of Canadian Economic Thought

Courses Planned for Summer School and Evening Division, 1975-79

The Department offers the following courses each summer: Economics 43.100, 43.101, 43.200, 43.210, 43.250★, 43.361★.

Each year, availability of instructors permitting, we plan to offer *at least* one more half course at the 300 level and a course at the 400 level.

For summer 1975, we plan to add Economics 43.344★ (01), 43.357★, 43.408★ and 43.430.

The Department offers the following evening courses each year: Economics 43.100, 43.101, 43.200, 43.201★, 43.210, 43.211★, 43.220, 43.250★, 43.325, 43.340, 43.345, 43.357★, 43.358, 43.360★, 43.361★, 43.406★, 43.407★, 43.408★, 43.410★, 43.418★, plus a choice of optional courses that will vary from year to year.

For 1975-76, the evening options include: Economics 43.335, 43.356★, 43.370, 43.380★, 43.430, 43.466, 43.485.

Officers of Instruction

Chairman

James Steele

Co-ordinator, *St. Patrick's College*

J.R. Morrison

Professors

A.M. Beattie

V.K. Chari

L.A. Cormican (*St. Patrick's College*)

Patrick Crutwell

Michael Gnarowski

B.W. Jones

G.B. Johnston

Marston LaFrance

R.L. McDougall

A.T. Tolley

G.J. Wood

Visiting Professor

A.W. Trueman

Associate Professors

T.H. Coulson

James Downey

M.J. Edwards

Barbara Garner

Maureen Gunn

Charles Haines

J.J. Healy

T.J. Henighan

R.B. Lovejoy

R.H. MacDonald

Lindsay Mann

R.D. Mathews

A.D. McLay

T.J. Middlebro'

Kathleen O'Donnell (*St. Patrick's College*)

Ian Pringle

S.C. Russell (*St. Patrick's College*)

R.B. Rutland

M. Ryan (*St. Patrick's College*)

James Steele

Alistair Tilson

James Wilcox

Douglas Wurtele

Lorna D. Young

Assistant Professors

D.A. Beecher

M.I. Cameron

Douglas Campbell

Parker Duchemin

Christopher Faulkner

Faith Gildenhuys

A.W. Heidemann

R.L. Hogg

Robert Laird

Barbara Lecker

Christopher Levenson

A.A. MacKinnon (*St. Patrick's College*)

Lawrence McDonald

George McKnight

J.R. Morrison (*St. Patrick's College*)

T. Nollitt (*St. Patrick's College*)

J. Noonan (*St. Patrick's College*)

Enoch Padolsky

Peter Simpson

R.I. Stephens Jones

Michael Thompson

Sessional Lecturers

Pauline Hemming

Sonia Tilson

Keith Wilson

Anna Wurtele

Major Programs

Every student who elects English as a Major subject must have his program approved by a member of the Department. The Major in English consists of a minimum of six courses in English, as follows:

1. a First year course in English, preferably English 18.162;
2. English 18.232 in the Second year, and 18.352 in the Third year;
3. three other courses in English, excluding 18.268 and 18.298.

With the approval of the Department, a student may arrange in special cases a course program which would allow alternatives to 18.232 and to 18.352. In order to continue in the Major or Honours program, a student must attain a grade point average of 4.0 or better in the First year course in English. A grade point average of at least 4.0 must be maintained thereafter in English courses.

A combined Major in English and another subject will include at least five courses in English. English 18.232 and 18.352 (or in special cases approved alternatives) are required. Both departments must approve a combined program.

Honours Programs

All students who meet the general University Honours requirements, and who have at least second class standing in English, will be admitted to, and permitted to

continue in, the Honours program. Students with third class standing in English will be given individual consideration on application to the Department. An Honours student must have his program approved at registration by a departmental adviser. The Honours program consists of twenty courses after Grade 13 (twenty-five after Grade 12), of which eleven must be in English, including the following:

1. a First year course in English, preferably 18.162;
2. English 18.232 and 18.352;
3. a course in English literature to 1500 or English language or English linguistics;
4. a course in Shakespeare and a course in English literature from 1500 to 1800;
5. a course in literature in English from 1800 to the present.

Of the eleven courses at least three must be chosen from courses at the 300 or 400 level designated by the Department as seminar courses or courses of independent study. English 18.209 (also listed as Classical Civilization 13.209) will be counted as one of the eleven courses required for the Honours degree.

With the approval of the Department, a student may arrange in special cases a course program which allows alternatives to English 18.232 and 18.352.

Combined Honours programs may be arranged. Six courses in English are usually required, including (a) a First-year course in English, preferably 18.162; (b) English 18.232 and 18.352. Of the six courses at least two must be chosen from courses at the 300 or 400 level designated by the Department as seminar courses or courses of independent study.

Graduate Program

The Department of English offers courses of study leading to the degree of Master of Arts. Students may choose a program consisting of course work and thesis or one consisting entirely of course work. For further details consult the Graduate Studies and Research Calendar.

Film Course and Creative Writing Course

The film course (English 18.268) and the creative writing course (English 18.298) offered in the Department of English carry credit towards the total requirements for the Major and Honours degree and may be counted

among the minimum eleven-course requirements of the Honours program. They cannot, however, be counted among the minimum six-course requirements of the Major program.

Reading Lists

Detailed reading lists will be available from the Department of English (1812 Arts Tower) after April 15.

Prerequisites

Prerequisites are listed by individual course, but seminars at the 300 or 400 level require at least Third year standing. In exceptional cases a specific prerequisite may be waived, if permission is granted.

St. Patrick's Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered

English 18.010

The Study of Literature

A study of selected plays, poems, short stories, essays, and novels. Essay writing is required.

Day and Evening divisions: Three hours a week.

D.A. Beecher (co-ordinator)

English 18.100

English Authors from Chaucer to T.S. Eliot

A study of significant works of English literature, presented as a general historical survey from the fourteenth to the twentieth centuries. Essay writing will be required.

Prerequisite: First year standing.

Day and Evening divisions: Three hours a week.

Barbara Garner (co-ordinator)

English 18.101

English and Continental Texts

A study of works by English and Continental writers, including Dante, Boccaccio, Chaucer, Shakespeare, Keats, Flaubert, Tolstoy, O'Casey, and Pirandello. Consult the instructor or the Department for complete reading lists. The Continental texts will be read in translation.

Prerequisite: First year standing.

Day division: Lectures two hours a week, group discus-

sion one hour a week.
C. Haines and assistants

English 18.102

Form and Tradition

A study of fiction, poetry, and drama concentrating on the nature and development of significant literary forms.

Prerequisite: First year standing.

Day division: Three hours a week.

James Wilcox (co-ordinator)

English 18.162

Twentieth Century Literature

For Major and Honours students, in the First year. Undeclared students may also enrol. An introduction to literary study, examining the poetry, drama, and fiction of the twentieth century. The relation between critical ideas and literary works will be emphasized. The course will consider the work of Joyce, Lawrence, Faulkner, Eliot, Yeats, and Williams, and a selection of novels, plays, and poems.

Prerequisite: First year standing.

Day and Evening divisions: Three hours a week, including a one-hour seminar.

Faith Gildenhuys (co-ordinator)

English 18.204

Dramatic Genres

A study of selected plays, representing the major genres of dramatic literature. The course will serve as an introduction to the study of drama. Portions or the whole of some plays included on the course will be rehearsed and presented by the class as part of the assigned work of the course.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Lectures and workshops four hours a week.

D. Campbell

English 18.205

History of the Language

A course on the nature and development of the sounds, grammar and spelling of the English language, together with some study of its cultural and stylistic evolution.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Three hours a week.

George Johnston

English 18.207

Literature and the Sciences

A course concentrating on certain points of intersection between literature and science, using texts from various periods and genres. In 1975-76 the course will explore literary and scientific versions of chosen themes, including human origins and evolution in space-time, life and environment, man in society, and the options of Promethean Man. Texts studied will include Plato's *Timaeus*, Teilhard de Chardin's *The Phenomenon of Man*, More's *Utopia*, Mary Shelley's *Frankenstein*, and

works by T.S. Eliot, D.H. Lawrence, H.G. Wells, as well as some recent science fiction. Readings from the history of science will be an integral part of the course.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Lectures three hours a week.

T.J. Henighan

English 18.208

Myth and Symbol

A study of myth and its appearance in literature. The main purpose of the course will be to describe archetypal patterns in literature, to trace these same patterns as they appear in myth, and to show how they relate to the form, substance, and effect of the literary work.

Prerequisite: A First year course in English or permission of the instructor.

Evening division: Lectures two hours a week.

Anna Wurtele

English 18.209

Greek and Latin Literary Genres

A study through English translations of the various genres of Greek and Latin literature, especially those which influenced later European writing: epic, drama, the ode, pastoral poetry, satire. Offered in the Department of Classics as Classical Civilization 13.209.

Prerequisite: English 18.010 or equivalent.

Day division: Lectures two hours a week.

T.R. Robinson

English 18.212

Old English

A study of Old English language and literature, including grammar and phonology, and translation of selections of Old English prose and poetry.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Two hours a week.

Enoch Padolsky

English 18.222

Introduction to Middle English

An introductory study of Middle English language and literature.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Lectures and seminar three hours a week.

E. Padolsky

English 18.232

English Studies I

The required course for Second year Honours and Major students. A selected group of major authors from Chaucer to Pope will be studied intensively, and their intellectual and artistic relationships emphasized.

Prerequisite: A First year course in English or permission.

Day and Evening divisions: Lectures and seminar three

hours a week.

P. Duchemin (co-ordinator)

English 18.234

Drama in England until 1642

A study of the development of dramatic production and literature from the middle ages to the closing of the theatres in 1642. Reading of representative plays, excluding Shakespeare.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Three hours a week.

D.A. Beecher

English 18.236

Shakespeare

A study of Shakespeare's environment and development as a dramatist, with reading of a select group of plays.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Three hours a week.

A.D. McLay (co-ordinator)

English 18.253

The Novel from Dickens to Conrad

A study of the English novel from the High Victorian period of Dickens, Thackeray, and Eliot to World War I.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Lectures three hours a week.

T.J. Middlebro' (evening), R.B. Rutland (day)

English 18.265

Linguistics and Style

A study of some of the important theoretical writings on style along with a detailed analysis of the style of a particular poet or writer. Theorists to be examined include Auerbach, Croll, Jacobson, Spitzer, and Ohmann.

Prerequisite: A First year course in English or permission of the instructor.

Not offered 1975-76.

English 18.268

The Forms and Conventions of the Cinema

An introduction to the study of the cinema and its vocabulary. Some of the cinema's characteristic forms and structures will be examined: the cinematic image; principles of cinematic composition; the fictional and the documentary film; mood and atmosphere. No practical film-making is involved.

Prerequisites: A First year course in literature and permission of the instructor.

Day division: Lectures and discussion four hours a week.

C. Faulkner, G. McKnight

English 18.272

Introduction to American Literature

An introduction to the major authors and traditions of American literature from the beginnings to the present.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Three hours a week.

V.K. Chari (Evening), J.J. Healy, S.C. Russell

English 18.282

Canadian Literature

A survey of the development of Canadian literature in English from its nineteenth century maritime beginnings to the present.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Three hours a week.

R.D. Mathews (co-ordinator)

English 18.298

Writing Seminar

A seminar involving regular assignments in various genres, and practical criticism based on this work. In 1975-76 the course will be principally concerned with prose fiction. Enrolment will be limited. Details may be obtained from the Department.

Prerequisites: A First year course in English and permission of the instructor.

Day division: Seminar two hours a week.

M.B. Thompson

English 18.300

Literary Criticism from Aristotle to the Present

A study of historical and current topics in literary criticism.

Prerequisite: English 18.232.

Day division: Seminar two hours a week.

T.H. Coulson

English 18.302

Children's Literature

An historical and critical study of children's literature. The course will introduce students to critical analysis and assessment of a number of acknowledged classics of children's literature. The organization of works studied will be generic, with myth, legend, folklore, fantasy, poetry, drama, allegory, fable, and fiction being the principal forms to be considered. A detailed reading list is available from the Department.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Lectures and discussion three hours a week.

B.W. Jones, (evening), R.B. Lovejoy

English 18.303

The English Novel

The development of the art of fiction in English literature, from its beginning in the eighteenth century, through the major Victorian novelists, to the beginning of the twentieth century.

Prerequisite: A First year course in English or permission.

Day division: Lectures three hours a week.
J. Wilcox

English 18.322

Middle English

A study of the English language and literature between the Norman Conquest and the fifteenth century. In 1975-76 the course will be principally concerned with the work of Geoffrey Chaucer.

Prerequisite: English 18.232 or permission of the instructor.

Day division: Seminar two hours a week.

E. Padolsky, D.J. Wurtele

English 18.327

Chaucer and the Allegorical Tradition

A study of the works of Chaucer and Spenser, principally *The Canterbury Tales*, and *The Faerie Queene*, together with contemporary background and current critical writings.

Prerequisite: English 18.232.

Evening division: Seminar two hours a week.

Anna Wurtele

English 18.334

Seminar in Medieval and Renaissance Drama

Study of a group of plays, with attention given to the development of dramatic form and theatrical techniques and to problems of staging. Included in the study will be the production-history of individual plays.

Not offered 1975-76.

English 18.336

Milton

An intensive study of the poetry and prose of Milton, combined with an examination of the intellectual background of his work and his age.

Prerequisite: English 18.232.

Not offered 1975-76.

English 18.337

Seventeenth Century Literature

This course will be devoted to a study of five major writers of the seventeenth century: Donne, Herbert, Marvell, Milton, and Bunyan. In addition, some other writers in prose, such as Bacon, Burton, Andrewes, and Browne, will be studied in less detail. These writers represent the principal trends and aspects of the age—the Anglo-Catholic, Puritan, and humanist—and the literary forms which were associated with them.

Prerequisite: English 18.232.

Evening division: Seminar two hours a week.

Parker Duchemin

English 18.338

Sixteenth Century Literature

An examination of various English authors of the sixteenth century, including Wyatt, Surrey, Sidney, Spenser, Donne, Jonson, and certain other writers to be selected by the instructor.

Prerequisite: English 18.232.

Day division: Seminar two hours a week.

G.J. Wood

English 18.342

Eighteenth Century Literature

In 1975-76 the principal concerns of the seminar will be: the rise and fall of Augustan satire; the development of the novel; the literature of sensibility; and the birth of Romanticism. Major figures to be studied are Dryden, Pope, Swift, Fielding, Gray, Johnson, Blake, and Jane Austen.

Prerequisite: English 18.232 or permission of the instructor.

Day division: Seminar two hours a week.

R.B. Lovejoy

English 18.343

The Novel from Defoe to Scott

A study of selected novelists of the eighteenth century and earlier nineteenth century.

Prerequisite: English 18.232.

Day division: Seminar two hours a week.

Patrick Cruttwell, Alistair Tilson

English 18.344

Restoration and Eighteenth Century Drama

A seminar in the development of drama in London from 1660 through the eighteenth century. Plays are chosen to illustrate the wide variety: the comedy of manners (Wycherley, Farquhar, and Congreve), heroic tragedy (Dryden and Otway), farce, sentimental drama, the comic opera of Gay, and the plays of Sheridan.

Prerequisite: English 18.232 or permission of the instructor.

Not offered 1975-76.

English 18.348

Studies in Romanticism

Detailed study of authors and themes in the period 1790 to 1830. In 1975-76 the course will be concerned with the work of William Blake.

Prerequisite: English 18.232.

Day division: Seminar two hours a week.

B.W. Jones

English 18.351

Studies in the Major Victorian Poets

A detailed examination of the poetry of Tennyson, Browning, and Arnold, with some attention to related poems of other Victorian authors.

Prerequisite: English 18.232 or permission of the instructor.

Not offered 1975-76.

English 18.352

English Studies II

The required course for Third year Honours and Major students. A selected group of nineteenth century authors will be studied.

Prerequisite: English 18.232.

Day and Evening divisions: Lectures and seminar three hours a week.

M.B. Thompson, (co-ordinator)

English 18.358

Studies in Major Nineteenth Century Thinkers

Readings in nineteenth century prose, with particular emphasis on Carlyle, Mill, Newman, Arnold, and Ruskin. Prerequisite: English 18.232 or permission of the instructor.

Day division: Seminar two hours a week.

T.J. Middlebro'

English 18.361

Twentieth Century Poetry

An introduction to the poetry of Great Britain and America in the twentieth century. Major figures to be studied will include Hardy, Yeats, Eliot, Pound, Lawrence, Williams, Stevens, and Edward Thomas.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Lectures three hours a week.

Peter Simpson

English 18.362

Twentieth Century Authors

In 1975-76 the poetry, drama, and fiction of the Anglo-Irish Literary Resurgence (1880-1940), with special consideration of works by Lady Gregory, W.B. Yeats, J.M. Synge, Sean O'Casey, Bernard Shaw, and James Joyce.

Prerequisite: A First year course in English or permission of the instructor.

Evening division: Lectures two hours a week.

Keith Wilson

English 18.363

Twentieth Century British Fiction

A study of twentieth century British fiction. The specific authors may vary from year to year. Consult the Department's reading lists.

Prerequisite: A First year course in English or permission of the instructor.

Evening division: Lectures three hours a week.

T.H. Coulson

English 18.364

Modern Drama

An examination of the significant trends that have shaped the development of modern drama from Ibsen and Strindberg to such contemporary dramatists as Beckett, Albee, and Pinter. Among the movements discussed and illustrated from relevant plays are realism, symbolism, expressionism, epic theatre, surrealism, theatre of cruelty, and theatre of the absurd.

Prerequisite: A First year course in English or permission of the instructor.

Day and Evening divisions: Lectures three hours a week.

Barbara Lecker (Evening), G.J. Wood

English 18.367

Contemporary Texts

Seminar in twentieth century works of literature. In 1975-76 the course will deal with the literature of the First World War. Works of fiction, poetry, and autobiography will be studied. Some of the writers to be considered are Wilfred Owen, Siegfried Sassoon, Edmund Blunden, and David Jones.

Prerequisite: A First year course in English or permission of the instructor.

Day division: Seminar two hours a week.

Christopher Faulkner

English 18.371

Studies in American Poetry

A study in depth of approximately twelve modern and contemporary American poets; including Stevens, Cummings, Williams, Moore, Duncan, Dorn, Creeley, Ginsberg, Corso, Ferlinghetti, Levertov, and Wakoski.

Prerequisite: English 18.272 or permission of the instructor.

Not offered 1975-76.

English 18.373

Studies in American Fiction

A study in the development of American novel and short story writing from Washington Irving to William Faulkner, including works of Poe, Hawthorne, Melville, Twain, Crane, James, Fitzgerald, and Hemingway.

Prerequisite: English 18.272 or a course in the English novel.

Day division: Seminar two hours a week.

V.K. Chari

English 18.378

Studies in American Literature

A study of the intellectual roots of American literature and culture: Puritanism, Enlightenment, Transcendentalism.

Prerequisite: English 18.272.

Not offered 1975-76.

English 18.381

Studies in Canadian Poetry

The seminar will concern itself with major trends and figures in Canadian poetry in the period 1880-1936. Poets to be studied: C.G.D. Roberts, A. Lampman, D.C. Scott, E.J. Pratt, F.R. Scott, A.J.M. Smith.

Prerequisite: English 18.282 or permission of the instructor.

Day division: Seminar two hours a week.

R.L. McDougall

English 18.383

Studies in Canadian Fiction

A study of selected Canadian novels and short stories, and of the development of Canadian fiction.

Prerequisite: English 18.282 or permission of the instructor.

Day and Evening divisions: Seminar two hours a week.
M.J. Edwards, L. McDonald

English 18.387

Selected Topic in Canadian Literature

A study of the development of literary criticism in English Canada from 1860 to the present. The changing presuppositions of various groups of critics regarding aesthetics, epistemology, nation, class, and history will be discussed.

Prerequisite: English 18.282 or permission of the instructor.

Day division: Seminar two hours a week.

James Steele

English 18.398

Independent Study

Research under the supervision of a member of the Department for students in the Third year who have declared Major or Honours standing in English. Projects may be organized on an individual basis, or as a special seminar directed by a member of the Department. The course may be taken only once. In the case of the individual project, an essay of approximately 8,000 words is the usual written assignment. A written request, outlining the project, with the approval of the supervisor, must be submitted to the co-ordinator by the last day for course changes. Entry into this course, when done as an individual study, will be limited to students with a B+ average in their English courses.

Note: This course cannot be used to fulfill an area requirement for the Honours degree; neither can it substitute for English 18.232 or 18.352.

Barbara Lecker (co-ordinator)

English 18.401

Poetry and Music 1550-1750

An examination of the relationship between poetry and music in the Renaissance and Restoration; Elizabethan lute songs and madrigals, music in the theatres, the court masque, broadsides and ballads, early opera and comic opera. Emphasis will be placed on the variety and themes of the lyrics. A technical knowledge of music would be desirable but is not essential.

Prerequisite: Permission of the instructor.

Day division: Seminar two hours a week.

D.A. Beecher

English 18.403

Seminar in the English Novel

A seminar for the study and discussion of the art of the novel as exemplified by major works of fiction. Study will include varieties of form and pattern, modes of narration, imagery and symbolism, realism, and naturalism. The following authors will be examined in detail: Defoe, Austen, Bronte, Dickens, James, Faulkner, Dos Passos. Some consideration will be given to the modern short story.

Prerequisite: Honours students; others by permission of the instructor.

Day division: Lecture and seminar two hours a week.
A.M. Beattie

English 18.411

Old English Poetry

Translation and study of the text of Beowulf and the Finnsburg Fragment.

Prerequisite: Permission of the instructor.

Day division: Seminar two hours a week.

George Johnston

English 18.418

Old Norse

An introductory study of the Old Norse language and literature.

Prerequisite: English 18.212 or an equivalent course in Old English, or permission of the instructor.

Not offered 1975-76.

English 18.436

Seminar in Shakespeare

A seminar for Honours students, concentrating on critical and scholarly approaches to Shakespeare's work.

Prerequisite: Honours students; others by permission of the instructor.

Day division: Lectures and seminar.

Faith Gildenhuys

English 18.458

Special Studies in Nineteenth Century Literature

A study of a special topic in nineteenth century literature.

Prerequisites: English 18.352 and permission of the instructor.

Not offered 1975-76.

English 18.464

Modern Theatre

A theoretical and practical study of the main traditions of theatre in the twentieth century.

Prerequisites: A departmental course in drama and permission of the instructor.

Seminar and workshop four hours a week.

D. Campbell

English 18.477

Major American Authors

A detailed examination of the thought and work of a selected group of significant American writers. In 1975-76 the course will focus upon Herman Melville in the First term and, in the Second term, upon the Afro-American contribution to the literature of the United States, from the Civil War to the present. Authors dealt with will include Langston Hughes, Richard Wright, James Baldwin, Ralph Ellison, Malcolm X, and Paule Marshall.

Prerequisite: English 18.272.

Day division: Seminar two hours a week.

J.J. Healy

English 18.483

Seminar in Canadian Fiction

A seminar in the work of a selected group of Canadian novelists and short-story writers.

Prerequisites: English 18.282 or 18.383 and permission of the instructor.

Not offered 1975-76.

English 18.487

Special Topic in Canadian Literature

An advanced course for Majors and Honours students in English. The general field of study will be the relation between French and English Canadian literature.

Prerequisite: Permission of the instructor.

Day division: Seminar two hours a week.

R.D. Mathews

English 18.488

Studies in the Literature of the Commonwealth

(i) African Literature (ii) Caribbean Literature

Authors considered: (i) Achebe, Ngugi, Okara, Toban Lo Liyong, La Guma, Sorjinka. (ii) Brathwaite, Naipaul, Reid, Lamming, Harris, Salkey, and Selvon.

The course will deal with the literatures in a formal and thematic way. It will address the question of oral traditions in Africa; the function of modern African writing in developing societies; the problem of colonialism; the aesthetic of Negritude. The Caribbean component of the course will deal with the problem of race, language, and identity; the cultural and political difficulties of a plural society; the legacy of slavery. Connections between Africa and the Caribbean in historical, literary, and ideological terms will be traced.

Prerequisite: Permission of the instructor.

Day division: Seminar two hours a week.

J.J. Healy

English 18.498

Independent Study

A course for independent research and writing, under the supervision of a member of the Department, open to students in the Fourth year of Honours with a B+ standing in their English courses. An essay of approximately 10,000 words is the usual written assignment. A written request, outlining the project, with the approval of the supervisor, must be submitted to the co-ordinator by the last day for course changes.

Note: This course cannot be used to fulfill an area requirement for the Honours degree; nor can it be substituted for English 18.232 or 18.352. For students in Combined Honours, however, it is considered to be the equivalent of an Honours Essay.

Barbara Lecker (co-ordinator)

English 18.499

Seminar

For Honours students in the Fourth year. The course will consider the role of literary studies in a complex system of higher education.

Not offered 1975-76.

Courses Offered at St. Patrick's College

English

02.102 Form and Tradition

02.162 Twentieth Century Literature

02.202 The History of Comedy and Satire

02.232 English Studies I

02.236 Shakespeare

02.253 The Novel from Dickens to Conrad

02.282 Canadian Literature

02.352 English Studies II

02.387 Selected Topic in Canadian Literature

02.390 The Literature of Existentialism

Courses Planned for Summer School and Evening Division, 1975-78

Selections from the following areas of courses will be offered as follows:

Core courses: 18.162, 18.232, 18.352: Offered each year in both Evening division, Winter session and Evening division, Summer session.

English literature before 1500, or English language or English linguistics: At least one course will be offered every other year in the Evening division, Winter session; at least one course will be offered every year in the Summer session.

Shakespeare courses: At least one course will be offered each year in the Evening division, Winter session and at least one course will be offered each year in the Summer session, alternating between Day and Evening divisions.

Courses at the 300 and 400 level designated as seminar courses: At least one course will be offered in each of: Evening division, Winter session; Day division, Summer session; Evening division, Summer session.

At least one course in each of the following areas will be offered each year in both Evening division, Winter session, and Summer session:

1. *English literature from 1500 to 1800;*
2. *English literature from 1800 to the present;*
3. *Canadian literature;*
4. *A First-year course in English other than 18.162.*

Officers of Instruction

Chairman

To be announced

Assistant Chairman

To be announced

Co-ordinator, St. Patrick's College

J.J. Kelly

Supervisor of Majors Studies

M. Gaulin

Supervisor of Honours Studies

J. Miquet

Supervisor of Graduate Studies

E.F. Kaye

Professors

H.P. Clive

C.P. Fleischauer

E.F. Kaye

J.J. Kelly (*St. Patrick's College*)

E. Kushner

J.S. Tassie

Associate Professors

O. Condemine (*St. Patrick's College*)

F. Cousin

A. Elbaz

R. Galliani

M. Gaulin

W.B. Kay

W. Krysinski

P. Laurette

J. Miquet

A. Roth

S. Sarkany

P. van Rutten

E.N. Zimmerman

Assistant Professors

I.T. Bischof (*St. Patrick's College*)

A. Halsall

S. Robinson

P. Smart

D.W. Smith

Senior Lecturers

W.M. Fraser

J.-J. van Vlasselaer

General Information

As Carleton University is situated in a bilingual community, students are encouraged to take advantage of the multiple opportunities for practical appreciation of the language. Radio, television, cinema, stage, the press and everyday conversation are at hand to supplement academic course work. Class lectures are conducted in French. The Department also has at its disposal a fully equipped language laboratory.

English-speaking students who enter the new program and wish to graduate with a Major or an Honours standing in French will normally be required to pass an oral examination testing their proficiency in spoken French. The examination will take place at the beginning of their final year, with the option of repeating it at the end of the final year.

New Program

For old program see p. 109.

This program is of special interest to students who will enter Carleton in the fall of 1975, and to returning students who have chosen to do Major or Honours work in French beginning with the winter session of 1975. It will also interest all other students who would like to take courses in the French Department.

Since the New Program will be implemented in three stages, of which merely the first one comprising the First Year courses will come into effect in 1975-76, only these latter courses appear in the section "Courses Offered" on page 107.

Note: Students who are in doubt concerning the courses they should take are strongly advised to consult the supervisors of Honours or Majors.

First Year Programs: Honours and Majors

Language requirement (one credit)

A student wishing to do Major or Honours work in French will take, normally in First year, French 20.111 (for Anglophones) or French 20.112 (for Francophones). Registration for French 20.111 and 20.112 will be through French 20.000, where tests will determine whether the student enters directly either of these courses, or should first be required to take one of the more elementary courses.

Literature requirement (one credit)

The student will also take one of the following: French 20.161, 20.162, 20.163.

Note: Honours students intending to choose the language-linguistics concentration would be well advised to take the required course Linguistics 29.100 during their first year.

Major Programs

1. Major in French

The following program will help the student to consolidate his knowledge of French grammar and to gain a comprehensive view of various aspects of French and French-Canadian literature.

The program consists of four courses beyond the common First Year.

In the Second Year students will normally take 20.211 (for Anglophones) or 20.212 (for Francophones), and two half-courses in literature chosen from the series 20.261★ to 20.268★.

In the Third Year students will normally take 20.311 and one literature course chosen from the series French 20.361 to 20.366, or with permission from 20.461 to 20.466.

Students should note that at least one of the literature credits must be obtained in a course or courses with a French content, and at least one in a course or courses with a French-Canadian content.

2. Combined Major

Combined Major programs are available in French and other modern or classical languages, linguistics, or with another discipline in the Humanities or Social Sciences.

The program consists of three courses beyond the common First Year.

In the Second Year students will normally take French 20.211 (for Anglophones) or French 20.212 (for Francophones), and two half-courses in literature chosen from the series French 20.261★ to 20.466.

In the Third Year students will normally take either French 20.311 or a literature course chosen from the series French 20.361 to 20.366 or with permission from French 20.461 to 20.466.

Students should note that at least one of the courses in Literature must be a course with a French content, and at least one with a French-Canadian content.

Honours Programs

Several Honours programs are available. Course patterns are designed to assure a balanced appreciation of French and French-Canadian literature, with competence in oral and written expression in the French language. Interested candidates will note the general regulations governing Honours on p. 58.

Honours in French

This program is particularly suitable for students intending to pursue graduate studies in the field of Romance languages and literatures.

Two areas of concentration have been created in the French Honours program:

Concentration A:

This program consists of six credits in literature and two credits in French language and linguistics beyond the common First Year. Two credits will also be taken in a language other than French or English.

The two credits in French language and linguistics will be chosen from French 20.111 (for Anglophones), French 20.212 (for Francophones), French 20.231★ to 20.233★, 20.311, 20.331 to 20.334★, 20.431 to 20.435, with at least one credit at the 300/400 level.

The six credits in literature will normally be chosen as follows:

Second Year: four half-courses, from 20.261★ to 20.268★;

Third Year: two courses, from 20.361 to 20.366;

Fourth Year: two courses, from 20.461 to 20.466.

Students should note that two of the literature credits must be obtained in courses with a French content, and two in courses with a French-Canadian content.

Concentration B:

This program consists of six credits in French language and linguistics and two credits in literature beyond the common First Year. Students are furthermore required to take Linguistics 29.100 and to obtain one credit in a language other than French or English.

The two credits in literature will be selected as follows: two half-courses chosen from French 20.261★ to 20.268★; one course from French 20.361 to 20.366 or 20.461 to 20.466.

The six credits in French language and linguistics will normally be taken as follows:

Second Year: French 20.211 (for Anglophones) or French 20.212 (for Francophones); 20.232 ★ and a course chosen from 20.231, 20.233 ★, 20.331 to 20.334 ★;

Third Year: French 20.311 and a course chosen from French 20.331 to 20.334 ★, 20.431 to 20.435;

Fourth Year: two courses, chosen from French 20.431 to 20.435.

Students should note that one of the literature credits must be obtained in a course or courses with a French content, and one in a course or courses with a French-Canadian content.

Combined Honours

Combined Honours programs are available in French and English, German, History, Latin, Linguistics, Political Science, Russian, Spanish, and with other departments by arrangement.

The Honours programs combining two languages prepare the student either for graduate work or for the Ontario College of Education courses leading to the Interim High School Assistant's Certificate Type A, and must be planned in close consultation with the departments concerned. The combined programs with History or Political Science are prepared for various kinds of public careers.

Two areas of concentration have been created in the Combined Honours program:

Concentration C:

This program consists of four credits in literature and one credit in French language and linguistics beyond the common First Year.

The one credit in French language and linguistics will be chosen from French 20.211 (for Anglophones), French 20.212 (for Francophones), French 20.231 to 20.233 ★.

The four credits in literature will normally be chosen as follows:

Second Year: two half-courses, from 20.261 ★ to 20.268 ★;

Third Year: one course, from 20.361 to 20.366;

Fourth Year: two courses, from 20.461 to 20.466.

Students should note that at least one and a half of the literature credits must be obtained in courses with a French content, and at least one and a half in courses with a French-Canadian content.

Concentration D:

This program consists of four credits in French language and linguistics and one credit in literature beyond the common First Year. One credit will also be taken in Linguistics 29.100.

The one credit in literature will consist of two half courses from the series 20.261 ★ to 20.268 ★.

The four credits in French language and linguistics will normally be chosen as follows:

Second Year: French 20.211 (for Anglophones) or 20.212 (for Francophones);

Third Year: French 20.311;

Fourth Year: two courses from French 20.431 to 20.435.

Students should note that one of the courses in literature must be a course with a French content, and one with a French-Canadian content.

Courses Offered

Numbering system:

The first digit indicates the year in which the course is normally taken. The significance of the next two digits is as follows:

01 to 09: Language courses for students from other Departments.

11 to 29: "Core" languages and linguistic courses principally for Majors or Honours.

31 to 49: Other language and linguistic courses.

51 to 59: Literature courses for students from other Departments.

61 to 79: "Core" literature courses principally for French Majors or Honours.

81 to 99: Other literature courses.

French 20.000

Placement course

Registration in this course is compulsory for all students intending to enrol in a Qualifying University year or First year French language course. It will function for registration purposes only, and will enable the French Department to direct students, through a series of tests and interviews, towards one of the following courses: French 20.011, 20.106 ★, 20.107 ★, 20.108, 20.111, 20.112, or in exceptional cases 20.001.

French 20.001

Elementary French

This course is designed for beginners in the language. Classes will use audio-visual methods and emphasis will be given to the spoken language for both classes and laboratory work. The credit gained from this course will

not count as part of the specific requirements for a Major or Honours in French.

Registration through French 20.000.

Not offered 1975-76.

French 20.011

Intermediate French

The course provides intensive practice in pronunciation and grammar, with emphasis on the development of oral proficiency. Reading selections from the twentieth century, as well as oral and written exercises. Compulsory attendance for both classes and laboratory work. The course will not normally be taken by students who have Ontario Grade 13 French or equivalent. The credit gained from this course will not count as part of the specific requirements for a Major or Honours in French. Registration through French 20.000.

Day and Evening divisions: Three hours a week, plus one hour of supervised laboratory.

W. Fraser, A. Halsall

French 20.106★

Reading French

This course is designed to enable specialists from other Departments in the Humanities, Social Sciences and Sciences to read technical texts in French with reasonable ease. The goal is comprehension of the written word only. After a review of basic French grammar, attention will be concentrated on reading selected material covering various fields of interest. The half-credit gained from this course will not count as part of the specific requirements for a Major or Honours in French.

Registration through French 20.000.

Day division, First and Second terms: One hour a week.

French 20.107★

Practical Phonetics

Practical exercises in pronunciation. Attention will be given to individual problems. Laboratory work on material introduced in class. This course may be taken by students intending to major in French as well as by students from other Departments. The credit gained from it will not count as part of the specific requirements for a Major or Honours in French.

Registration through French 20.000.

Day division, First term: Three hours a week, plus laboratory assignments.

A. Bergens

French 20.108

French Language Course for Non-Majors

Intensive study of the French language for students from other Departments, based on audio-oral principles. Emphasis is placed on oral comprehension and expression, without omitting the written aspects of the language. The student will be encouraged to speak French. Compulsory attendance at both classes and laboratory.

Registration through French 20.000.

Day and Evening divisions: Three hours a week plus laboratory assignments.

J.-J. van Vlasselaer and members of the Department

French 20.111

Advanced French (A)

Intensive study of the French language, both spoken and written, with particular attention to the vocabulary, syntax and the various levels of speech: oral reports and written assignments. This course is particularly designed for Anglophone students intending to specialize in French, but it is also open to all those students who already have a good grounding in the language. Compulsory attendance for classes.

Registration through French 20.000.

Day and Evening divisions: Two one-and-a-half-hour lectures a week plus laboratory assignments.

A. Elbaz and members of the Department

French 20.112

Advanced French (B)

Comprehensive study of modern grammar. Acquisition of an extensive vocabulary and variety of idioms. Grammatical study of a selection of texts, both prose and poetry. Exercises in writing short essays. This course is particularly designed for Francophone students intending to specialize in French but it is also open to those students from other Departments who possess the necessary proficiency. Compulsory attendance for classes.

Registration through French 20.000.

Day and Evening divisions: Two one-and-a-half-hour lectures a week.

M. Gauvin, E.F. Kaye

French 20.151

French-Canadian Literature

A course for students who do not intend to select French as a Major or Honours subject. Its purpose is to present the student with a survey of French-Canadian literature, with emphasis on contemporary authors. Students will be encouraged to use the French language for self-expression but need not do so. English may occasionally be used by the instructor in presenting and commenting on the texts.

Day division: Three hours a week.

P. Smart, J.S. Tassie

French 20.152

French Literature

A course for students who do not intend to select French as a Major or Honours subject. Its purpose is to present the student with a survey of French literature, with emphasis on contemporary authors. Students will be encouraged to use the French language for self-expression but need not do so. English may occasionally be used by the instructor in presenting and commenting on the texts.

Day division: Three hours a week.
A. Halsall, W.B. Kay

French 20.161

Introduction to Literature (A)

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French literature will be selected within the period from Molière (seventeenth century) to Verlaine (nineteenth century). Prerequisite: Ontario Grade 13 French, French 20.011, or equivalent.

Day division: Three hours a week and one discussion group period.

E.F. Kaye

French 20.162

Introduction to Literature (B)

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French literature will be selected within the period from Zola (nineteenth century) to the present day.

Prerequisite: Ontario Grade 13 French, French 20.011 or equivalent. Students taking this course will not be allowed to count French 20.256 ★ as part of the specific requirements for a Major or Honours in French.

Day and Evening divisions: Three hours a week and one discussion group period.

R. Galliani, P. Laurette

French 20.163

Introduction to Literature (C)

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French-Canadian literature will be selected within the period from Nelligan (nineteenth century) to the present day.

Prerequisite: Ontario Grade 13 French, French 20.011, or equivalent. Students taking this course will not be allowed to count 20.258 ★ as part of the specific require-

ments for a Major or Honours in French.

Day and Evening divisions: Three hours a week and one discussion group period.

M. Gaulin, D. Smith

French 20.181

Civilization I

This course entails the study of a certain number of important elements of the culture and civilization of two French-speaking countries, alternatively French Canada and France: culture customs, institutions etc., with emphasis on the present situation.

Prerequisite: Permission of the Department.

Not offered 1975-76.

Old Program

For New Program see p. 105.

This program is of interest to those students who have already started a Major or Honours degree in French, and to all other students who wish to take advanced courses in the French Department. The Old Program will be phased out in three stages. Under the first stage, the First year program is being replaced in 1975-76. Accordingly, only the Second, Third and Fourth year courses of the Old Program appear in the section "Courses Offered". Please note, however, that French 20.001, 20.010, 20.100 and 20.120 will still be offered during the summer session, 1975.

Note: Students who are in doubt concerning the courses they should take are strongly advised to consult the supervisors of Honours or Majors.

Major Programs

Major in French

1. For the First year program the student is supposed to have satisfied the requirements on pp. 111-112 of the 1974-75 Calendar.

2. Beyond the First year the equivalent of four full courses in French is required at the 200 and 300 levels, as follows: (a) at least three courses are to be selected from French 20.210, 20.215, 20.220, 20.221, 20.225, 20.230, 20.260, 20.305, 20.310, 20.311, 20.335; (b) at least one of the courses must be at the 300 level, but need not be chosen from the preceding list. This program will help the student to consolidate his knowledge of French grammar and to gain a comprehensive view of the various aspects of French and French-Canadian literature.

Combined Major Program

Combined Major programs are available in French and other modern or classical languages or with another discipline in the Humanities or Social Sciences.

1. For the First year program refer to the corresponding section on pp. 111-112 of the 1974-75 Calendar.

2. Beyond the First year the equivalent of three full courses at the 200 and 300 levels, as follows: **(a)** at least two courses are to be selected from the list of courses specified for Majors in French in paragraph 2(a) above; **(b)** at least one of the courses must be at the 300 level, but need not be chosen from that list.

Honours Programs

Several Honours programs are available. Course patterns are designed to assure a balanced appreciation of all periods of French and French-Canadian literature, with competence in oral and written expression in the French language. Interested candidates will note the general regulations governing Honours on p. 58.

Honours in French

This program is particularly suited for students intending to pursue graduate studies in the field of Romance languages and literatures. It normally consists of twenty courses after Grade 13 and will include the study of a second language other than English.

1. For the First year program the student is supposed to have satisfied the requirements on pp. 111-112 of the 1974-75 Calendar.

2. Beyond the First year the equivalent of eight full courses in French are required at the 200, 300 and 400 levels as follows: **(a)** at least four courses are to be selected from French 20.210, 20.215, 20.220, 20.221, 20.225, 20.230, 20.260, 20.305, 20.310, 20.311, 20.335, 20.430, 20.440, 20.450, 20.460, 20.470, 20.490; **(b)** at least the equivalent of five full courses will be at the 300/400 levels with a minimum of two at the 400 level.

3. Additional course requirements: **(a)** two courses in another language (German, Italian, Spanish, Russian or Latin); and **(b)** a further course or courses in an approved option.

Combined Honours

Combined Honours programs are available in French and English, German, History, Latin, Political Science, Russian, Spanish, and with other departments by arrangements.

The Honours programs combining two languages prepare the student either for graduate work or for the Ontario College of Education courses leading to the Interim High School Assistant's Certificate Type A, and must be planned in close consultation with the departments concerned. The combined programs with History or Political Science are suited for various kinds of public careers.

1. For the First year program refer to the corresponding section on pp. 111-112 of the 1974-75 Calendar.

2. Beyond the First year the equivalent of five full courses in French are required at the 200, 300 and 400 levels as follows: **(a)** at least three courses chosen from the list of courses specified for students in Honours French in paragraph 2(a) above; **(b)** at least three full courses at the 300/400 levels with a minimum of two at the 400 level.

3. Six additional courses will be taken in the second Honours subject after the 100 level course. Students should seek advice from the second Honours department.

Graduate Program

The Department offers studies leading to the M.A. degree; studies at the Doctoral level are now in a planning stage. Emphasis is placed on work in specialized fields, a particular author or period, and research on problems of literary history. For further information, please consult the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered

French 20.210

La littérature et la pensée française du XVII^e siècle

Le XVII^e siècle français: La littérature de l'âge baroque et de l'âge classique. Auteurs spécialement étudiés: Corneille, Molière, La Fontaine, Pascal, Mme de la Fayette, Racine.

Prerequisite: French 20.100 or 20.101, or permission of the Department.

Texts: Rousset, *Anthologie de la poésie baroque française*; Classiques Larousse, Didier, Hachette.

Day division: Three lectures a week.

W.B. Kay

French 20.215

La littérature et la pensée française du XVIII^e siècle

Prolongement du classicisme. Les nouvelles idées politiques, sociales, religieuses, philosophiques. Le roman et le théâtre.

Prerequisite: French 20.100 or 20.101, or permission of the Department.

Texts: Castex et Surer, *Manuel des études littéraires françaises: XVIII^e siècle*; Fellows and Torrey, *Age of Enlightenment*; a choice of paperbacks.

Day division: Three lectures a week.

R. Galliani

French 20.220

La littérature de la période romantique

De Mme de Staël à la mort de Balzac.

Prerequisite: French 20.100 or 20.101, or permission of the Department.

Texts: Lagarde et Michard, *XIX^e siècle*; Chateaubriand, *Atala*; *René*, and others.

Day division: Three lectures a week.

A. Halsall

French 20.221

La littérature post-romantique

Le réalisme et le naturalisme. Le Parnasse. Le symbolisme jusqu'à Mallarmé.

Prerequisite: French 20.100 or 20.101, or permission of the Department.

Texts: Lagarde et Michard, *XIX^e siècle*; Flaubert, *Madame Bovary* (Garnier); Zola, *Germinal* (L. de Poche); Maupassant, *Contes choisis* (Cl. Larousse); Les Poètes parnassiens, *Extraits* (Lagarde et Michard); Baudelaire, *Les Fleurs du Mal* (Garnier); Verlaine, *Les Poèmes saturniens*; Les *Fêtes galantes* (L. de Poche); Rimbaud, *Poésies* (L. de Poche); Mallarmé, *Extraits* (Lagarde et Michard).

Day division: Three lectures a week.

C.D. Hérisson

French 20.225

Littérature française de la fin du naturalisme à l'existentialisme

Prerequisite: French 20.100 or 20.101. Major or Honours students of French may not take this course to fulfill French requirements if they have taken French 20.102.

Texts: Zola, *Germinal*; Péguy; Proust, *Du Côté de chez Swann*; Gide, *L'Immoraliste*; Malraux, *La Condition humaine*; Camus, *Caligula*, *Le Malentendu*; Lagarde et Michard, *XX^e siècle*.

Evening division: Two lectures a week.

A. Elbaz

French 20.230

La littérature française de l'existentialisme au nouveau roman

Prerequisite: French 20.100 or 20.101. Major or Honours students of French may not take this course to fulfill French requirements if they have taken French 20.102.

Day division: Three hours a week.

E. Zimmermann

French 20.250

Le Théâtre: Théorie et pratique

Etude de l'histoire du théâtre français et examen détaillé de cinq pièces. Travaux pratiques (diction, interprétation théâtrale). Inscriptions limitées.

Prerequisite: A French course at the 100 level except 20.104.

Evening division: Three lectures a week.

J.-J. van Vlassalaer

French 20.260

Littérature canadienne de langue française

Evolution de la littérature canadienne-française dans ses thèmes et dans ses techniques.

Prerequisite: French 20.100 or 20.101, or permission of the Department. Major or Honours students may not take this course to fulfill French requirements if they have taken French 20.103.

Texts: Choix de romans et de poésies du XIX^e siècle à l'époque moderne.

Day and Evening divisions: Three hours a week.

D. Smith, J.S. Tassie

Summer 1975, Day division.

French 20.300

Grammaire française

Etude linguistique des éléments du discours. Travaux pratiques.

Prerequisite: French 20.200 or permission of the Department.

Evening division: Two lectures a week.

P. van Ruten

French 20.301*

Traduction

Eléments de stylistique comparée; traduction de l'anglais au français.

Prerequisite: French 20.200 or permission of the Department.

Day and Evening divisions: Three hours a week.

F. Cousin, J. Miquet

Summer 1975, Day and Evening division.

French 20.302*

La dissertation française

Exercices pratiques de composition et d'expression de critique littéraire.

Prerequisite: A French course at the 200 level or permission of the Department.

Day division, First term: Three hours a week.

A. Bergens

Summer 1975, Day division.

French 20.304★

Phonétique et phonologie françaises

Notions fondamentales de phonétique, les voyelles, les consonnes; phonétique combinatoire; prosodie.

Prerequisite: French 20.200 or permission of the Department.

Evening division, Second term: Two lectures a week.

French 20.305

La langue et la littérature française du moyen âge

Initiation à l'ancienne langue et aux principaux courants de la littérature médiévale par l'étude de certains textes.

Prerequisite: A French course at the 200 level.

Texts: Raynaud de Lage, *Introduction à l'ancien français*; Bédier, *La Chanson de Roland*; Lagarde et Michard, *Moyen Age*; Stone, *Tristan et Iseut*; choix de Classiques Larousse.

Evening division: Two lectures a week.

J. Miquet

French 20.310

La Renaissance en France: Principaux courants de la pensée

L'humanisme et le retour aux oeuvres de l'Antiquité; influence de l'Italie; Rabelais; l'évangélisme; le courant platonicien; Marguerite de Navarre; la Réforme; Montaigne.

Prerequisite: French 20.210 or permission of the Department.

Not offered 1975-76.

Summer 1975, Evening division.

French 20.311

La Renaissance en France: Evolution des formes littéraires

Assimilation de l'apport antique aux formes littéraires du XVI^e siècle; transition entre la tradition française ou marotique et les théories de la Pléiade; épanouissement des grands genres littéraires.

Prerequisite: French 20.210 or permission of the Department.

Day division: Three hours a week.

E. Kushner

French 20.315

Histoire des idées en France

Not offered 1975-76.

French 20.335

L'Evolution de la pensée du Canada français

La pensée canadienne-française vue dans ses grandes lignes à travers certains essayistes.

Prerequisite: French 20.260 or permission of the Department.

Day division: Three hours a week.

J.S. Tassie

French 20.346

Histoire de la civilisation française

La France au XX^e siècle: histoire, vie sociale, courants religieux, climat intellectuel.

Prerequisite: French 20.225, 20.230, or permission of the Department.

Not offered 1975-76.

French 20.350★

Explication de texte

Examen détaillé d'un certain nombre de textes pour développer l'art de l'analyse littéraire.

Prerequisite: Permission of the Department.

Not offered 1975-76.

French 20.401

Stylistique

Analyse des procédés d'écriture dans la prose et dans la poésie.

Prerequisite: A French course at the 300 level or permission of the Department.

Not offered 1975-76.

French 20.402★

La bibliographie

Les sources du travail bibliographique et les méthodes de recherche littéraire.

Texts: Macles, *La bibliographie*; Bouvier et Jourda, *Guide de l'étudiant en littérature française*; Morize, *Problems and Methods of Literary History*.

Not offered 1975-76.

French 20.403★

Histoire de la langue française

Le développement de la langue française depuis ses origines.

Prerequisite: A French course at the 200 level, or permission of the Department.

Texts: Bruneau, *Petite histoire de la langue française*.

Not offered 1975-76.

French 20.405

Linguistique générale et linguistique française

Les éléments de base de la linguistique générale appliquée. Etude des différentes écoles.

Prerequisite: French 20.300, 20.301★ or 20.302★, or permission of the Department.

Day division: Two hours a week.

F. Cousin

French 20.430

La critique littéraire en France

Les tendances principales de la critique moderne en France: thématique, structuraliste, sociologique, sémiotique.

Evening division: Two hours a week.

W. Kryszinski

French 20.440

Le roman français

Stendhal: fiction et réalité dans l'univers romanesque, de Henry Brulard à la *Chartreuse*.

Day division: Two hours a week.

E.F. Kaye

French 20.450

La poésie française

Not offered 1975-76.

French 20.460

Le théâtre en France

Raison et passion dans le théâtre du XVII^e siècle: Corneille, Molière, Racine.

Prerequisite: Permission of the Department.

Summer 1975, Evening division.

French 20.465

La littérature canadienne-française

Littérature et mouvement des idées au Canada français (1840-1900).

Prerequisite: French 20.260, 20.335, or permission of the Department.

Evening division: Two hours a week.

M. Gaulin

French 20.470

Seminar on a Topic of French Literature

Etude linguistique, littéraire et socio-culturelle de l'épopée: Le Cycle de Guillaume (*Le Couronnement de Louis*, *Charroi de Nîmes*, *La Prise d'Orange*).

Prerequisite: French 20.305, or permission of the Department.

Day division: Two hours a week.

J. Miquet

French 20.490

Tutorial

Les rapports entre la littérature et les différents arts au XVIII^e siècle.

Prerequisite: French 20.215 or permission of the Department.

Evening division: Two hours a week.

C.P. Fleischauer

French 20.498

Initiation à la recherche

Etablissement d'une bibliographie, de fiches, d'un plan, d'une édition critique, etc. Petit mémoire ou dissertation.

Prerequisite: Permission of the Department.

Not offered 1975-76.

Graduate Courses Open to Undergraduates

(With permission of the Department)

French

20.501 Aspects de la linguistique

20.520 Aspects de la littérature canadienne-française

20.530 Aspects de la littérature de la Renaissance

20.550 Aspects de la littérature du XX^e siècle

20.585 Seminar on a Problem of Literary History

Courses planned for Summer School and Evening Division, 1975-1979

Summer 1975

20.001, 20.010, 20.100, 20.120, 20.200, 20.203★, 20.204★, 20.260, 20.301★, 20.302★, 20.310, 20.460.

Evening Division 1975-76

New Program:

20.011, 20.108, 20.111, 20.112, 20.162, 20.163.

Old Program:

20.225, 20.300, 20.301★, 20.304★, 20.305, 20.401, 20.430, 20.465, 20.490.

Due to the implementation in several stages of a restructured program, it would be difficult to provide a detailed list of course offerings for the next four years. However, due account will be taken in the planning of evening courses for the winter sessions and summer school programs of the desirability of enabling students to complete a degree program over a period of four years.

Department of Geography

Officers of Instruction

Chairman

D.M. Anderson

Supervisor of Graduate Studies

J.P. Johnson, Jr.

Supervisor of Honours Studies (B.A. and B.Sc.)

J.K. Torrance

Supervisor of Majors Studies

J.E. Tunbridge

Supervisor of Special and Part-time Students

T.P. Wilkinson

Professors

D.P. Fitzgerald

J.P. Johnson, Jr.

G.C. Merrill

D.M. Ray

P.E. Uren

P.J. Williams

Associate Professors

D.M. Anderson

D.R.F. Taylor

T.P. Wilkinson

Assistant Professors

D. Bennett

J. Clarke

D.B. Knight

J.K. Torrance

J.E. Tunbridge

M.W. Smith

A.I. Wallace

Adjunct Professor

G.C. Topp

Sessional Lecturers

A. Ansell

E.D. Baldock

B. Farrell

M.F. Fox

R.O. Ramseier

A.D. Stanley

G.D. Taylor

Visiting Professor

C.F.J. Whebell

General Information

Both the Major and Honours programs in Geography

offer the student considerable freedom to take a broad spectrum of courses, or to pursue a particular interest through courses in Geography and in related disciplines. Students are encouraged to include in their First and Second years, Geography 45.101 and a selection of geography courses at the 200 level that will provide a broad base for future course selection and for future careers. In the Third and Fourth years, through selection of courses in Geography and related disciplines, it is possible to concentrate in one of several current areas of emphasis in Geography. Programs should be planned in consultation with a departmental adviser.

Students should note that higher level courses in Geography frequently require prerequisites which should be considered in planning a program. Students wishing to take a particular course for which they do not have the full prerequisite should obtain the written permission of the instructor. The first digit of the course number corresponds to the year in which the department normally expects the student to take the course.

Detailed course descriptions and guidelines to various programs of courses within Geography are available from the Department of Geography.

Some courses now listed as Day division may be offered in the Evening in 1975-76. Students should enquire at the Geography Department regarding course times.

Under University regulations a student may, with departmental permission, take the equivalent of one course credit per winter session at the University of Ottawa without additional fee. Geography courses taken in the Department of Geography at the University of Ottawa are acceptable to a Carleton program.

Major Programs

Major in Geography

This program is offered for the student who wishes a liberal arts education with emphasis in Geography. Guidance on patterns of courses for particular interests is available from the Department.

Students admitted to a single Major in Geography are required to complete the equivalent of at least six full courses in Geography. These courses should include Geography 45.101, at least the equivalent of two full courses at the 200 level, and at least the equivalent of two full courses at the 300 level.

Combined Majors

Students admitted to a Combined Major in Geography and another department are required to complete the equivalent of at least four full courses in Geography. The

program should include Geography 45.101 and at least the equivalent of one full Geography course from Second year and at least one from Third year.

Honours Programs

The Honours program in Geography is offered for the student who wishes to prepare for teaching, graduate study or other specialization in the field of Geography. Information on recommended patterns of courses related to various interests is available from the Department. There is substantial freedom in the program for the student to take courses of special interest in the University, as well as courses in Geography and related disciplines.

Students reading for an Honours degree must satisfy the general University regulations for Honours (p. 58).

B.A. with Honours in Geography

Students admitted to the Honours Geography program are required to complete a minimum of nineteen full courses (a maximum of four being in the Fourth year), of which at least ten must be in Geography. Honours students should take Geography 45.101, at least the equivalent of two full courses at the 200 level, at least the equivalent of two full courses at the 300 level, and in Fourth year, Geography 45.498 (Honours Research Essay) and at least the equivalent of two other approved Geography full courses at the 400 level and one other approved course.

Students wishing to take the Type A Specialist Certificate at an Ontario College of Education are advised to consult the departmental adviser as early as possible in order that an appropriate program can be arranged.

The four course program in Fourth year is intended to give the student in his final University year more freedom for thought, reading and discussion, more intensive work on papers in seminars, and to allow for time, if necessary, for field work associated with Geography 45.498 (Honours Research Essay).

Combined Honours

Students taking Combined Honours in Geography and another subject are required to complete the equivalent of at least six full Geography courses which should include 45.101, at least one 200 level course, at least one 300 level course and at least one 400 level course in Geography. An Honours Research Essay must be written either in Geography or in the other department in a Combined Honours program.

Fourth year Honours students may take Geography

courses listed in the Graduate Studies and Research Calendar only with permission of the Chairman.

B.Sc. with Honours in Geography

The program consists of twenty courses beyond Senior Matriculation or Qualifying University year Science, selected in a pattern approved by an appropriate adviser in the Geography Department, and consistent with the following requirements.

1. The First year of the program will be consistent with Science Faculty requirements for First year Science, and will include:

Mathematics 69.100 or 69.101

Chemistry 65.100

Geology 67.100

One of Biology 61.100 or Physics 75.100

Geography 45.101 will be taken as an Arts option.

2. The program will contain eight full courses in Geography beyond Geography 45.101, including the Honours Research Essay 45.498 which should be taken in the final year.

3. Seven full courses to be taken must be selected from the list below and should include Geography 45.210, 45.308, 45.312, and 45.345. In special cases students may, with permission, take an appropriate graduate course (for example, Geography 45.515 Glaciology) in their final year.

Geography

45.210 Physical Geography

45.303 ★ Quantitative Geography

45.308 Geography of Soils

45.312 Geomorphology

45.325 Cartography

45.345 Climatology

45.402 ★ Problems in Physical Geography

45.411 ★ Quaternary Geography

45.412 ★ Terrain Analysis

45.413 ★ Hydroclimatology

45.414 ★ Micrometeorology

45.415 ★ Slope Development: Forms, Processes and Stability

45.416 ★ Engineering Geomorphology

45.417 ★ Glacial Geomorphology

45.424 ★ Soil Mechanics

Physics 75.100 (required course in the Second year of the program if not taken in First)

Mathematics 69.257 ★ or 69.258 ★

Geology 67.234 ★ and 67.281 ★

4. The remaining seven courses must include:

(a) Two approved courses in Science, not in Geography, beyond First year level;

(b) Two approved courses in Science, Computing Science or Engineering;

- (c) Two Arts electives, one of which must be an approved course, not in Geography;
(d) One free elective.

Graduate Program

The Department of Geography offers studies leading to the degree of Master of Arts. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Geography 45.100

Earth Science

Introduction to analysis of maps and aerial photographs. Earth as a planet; rocks and minerals; the earth's crust, the major land forms, deformation and movements; the agents of erosion; the genetic study of land forms; climate; soils and vegetation.
Not offered 1975-76.

Geography 45.101

The Geographic Web

Introduction to the spatial aspects of geographic activity, and problems of natural and human environments. Emphasis is placed upon concepts, processes and problems in contemporary geography. There are three required sections: Introductory Human Geography (one term); Introductory Physical Geography (one term); Practical Work—Laboratories (both terms).
Day and Evening divisions: Lectures two hours a week, laboratories three hours a week, field excursions.
J. Clark, M.F. Fox, J.E. Tunbridge, T.P. Wilkinson

Geography 45.200 ★

Introduction to Cartography

Introduction to cartography and the collection of geographic data.
Prerequisite: Geography 45.101. (See page 53.)
Day division, First term: Lectures two hours a week, laboratory two hours a week and a one week field camp.
B. Farrell

Geography 45.201 ★

Statistical Methods in Geography

Introduction to statistical analysis as applied to geography.
Prerequisite: Geography 45.101.
Day division, Second term: Lectures two hours a week, laboratory three hours a week.
D. Bennett

Geography 45.202 ★

Air Photo Interpretation

An introduction to photogrammetry and interpretation of aerial photographs.

Prerequisite: Geography 45.101. (See page 53.)

Day division, Second term: Lectures two hours a week, laboratory two hours a week and a one week field camp. The field camp work is the same as that required for Geography 45.200 ★.

M.F. Fox

Geography 45.210

Physical Geography

The physical systems of the earth's surface and atmosphere and their geographic significance.

Prerequisite: Geography 45.101 or 45.100, or Geology 67.100.

Day division: Lectures two hours a week, laboratory three hours a week. Laboratory sections will relate to prerequisites.

M.W. Smith, T.P. Wilkinson

Geography 45.220

Concepts of Spatial Organization

A study of the basic geographical variables, including distance, extent, pattern and density to understand how they influence the spatial structure of human activity. All conceptual material is strongly anchored in empirical findings from the relevant subfields of Geography.

Prerequisite: Geography 45.101.

Evening division: Lectures and discussion three hours a week.

A.I. Wallace

Geography 45.230

Cultural Geography

Examination of distributions, in time and space, of cultures and elements of cultures, and the ways in which human groups, by their ideas and behaviour, affect the evolution of humanized landscapes. The linkages between culture and habitat are stressed.

Prerequisite: Geography 45.101. (See page 53.)

Evening division: Lectures and discussion three hours a week.

C.F.J. Whebell

Geography 45.303 ★

Quantitative Geography

Multiple-regression and factor analytic techniques as applied to problems of classification, regionalization, explanation and hypothesis testing in geographical research. Various taxonomic algorithms are examined and an introduction to geographical models is provided.
Prerequisites: Geography 45.201 and enrolment in a Geography degree program.

Day division, First term: Lectures two hours a week, seminar/discussion two hours a week.

D. Bennett

Geography 45.305

Geography of Canada

Analysis of factors related to patterns of organization and change in the Canadian landscape. Focus on major problems of Canadian Geography and the Canadian

environment.

Prerequisite: Third year standing.

Evening division: Lectures three hours a week.

D.M. Anderson, D.M. Ray

Geography 45.308

Geography of Soils

The chemical and physical properties of soils; soil types and their distribution.

Prerequisite: Geography 45.210.

Day division: Lectures two hours a week, laboratory three hours a week.

J.K. Torrance

Geography 45.312

Geomorphology

Geomorphic processes and related landforms with emphasis on glacial and fluvial activity. Field and laboratory methods used in analysis of landforms and geomorphic processes.

Prerequisites: Geography 45.201 and 45.210.

Day division: Lectures, laboratory and field work, five hours a week.

J.P. Johnson, Jr., T.P. Wilkinson

Geography 45.320

Urban Geography

Theoretical survey of urban systems: relations between cities (economic base, central place theory, etc.); internal structure, emphasizing form, social-demographic and especially functional characteristics. Regional variation in urban patterns concluding with topics of special contemporary or future importance.

Prerequisites: Geography 45.220 or permission of the instructor.

Day division: Lectures and discussion three hours a week.

J.E. Tunbridge and visitors

Geography 45.325

Cartography

The history and development of map making. The compilation, production and uses of the modern topographic map. Special purpose maps and their use, construction and development including computer mapping.

Prerequisites: Geography 45.101 and 45.200★.

Evening division: Lectures and laboratory four hours a week.

E.D. Baldock

Geography 45.330

Developing Nations of Inter-Tropical Africa

Geographical aspects of the problems and potential of the developing nations of inter-tropical Africa. The interaction of men and environment will be examined as well as the historical developments which have led to some of the present day situations. (Also listed as Anthropology 53.330.)

Prerequisite: Third year standing.

Day division: Lectures and discussion three hours a week.

D.R.F. Taylor

Geography 45.331★

Cultural Geography of the Caribbean

Caribbean lands and societies are examined from the viewpoint of cultural geography, with an emphasis upon the culture history that has produced the pluralistic societies that characterize the modern Caribbean.

Prerequisite: Geography 45.230.

Not offered 1975-76.

Geography 45.332★

Cultural Geography of the South West Pacific

Cultural and racial complexities and diverse patterns of population distribution and man/land relationships to be examined from the viewpoint of cultural geography and related to problems of development in Australia, New Zealand and the islands of the South West Pacific.

Prerequisite: Geography 45.230.

Evening division, First term: Lectures and discussion three hours a week.

D.B. Knight

Geography 45.333★

Regional Development and Planning in Canada

Introduction to land and water resource management in Canada with chief emphasis on Ontario. The evolution of the conservation movement, the drainage basin authority, and the interrelationships between conservation, regional development and land resource planning. Specific legislation is examined.

Day division, First term: Lectures two hours a week, one hour discussion group.

D.M. Anderson and visitors

Geography 45.334★

Geography of a Selected Drainage Basin

An examination of problems in a specific drainage basin. Emphasis will be placed on coordination of local and regional authorities responsible for water resources, pollution, recreation, land use and urban development and the practical problems encountered, in the Ontario context.

Prerequisites: Geography 45.101 and 45.333★.

Day division, Second term: Lectures and discussion three hours a week.

Geography 45.335

Historical Geography of Canada

An introduction to the methodology of historical geography and to the historical geography of Canada.

Prerequisite: Geography 45.230 or History 24.230. A course in statistics is recommended.

Day division: Lectures one hour a week, laboratory or seminar two hours a week.

J. Clarke

Geography 45.336★

Man/Land Relationships in Prehistory

An examination of the development of the symbiotic relationship between man and the land: livelihoods, settlement types and patterns, the origins and dispersals of domesticated plants and animals, cultural evolution in prehistory.

Prerequisite: Geography 45.230.

Not offered 1975-76.

Geography 45.341★

Transportation Geography

Geographical appraisal of transportation networks in relation to their physical and economic environment. Traffic flows as the dual of spatial distributions of human activity. The economics of transport as they relate to regional development and the location of industry. Problems of urban transport. (Also listed as Engineering 82.435★.)

Prerequisites: Geography 45.201 and 45.220.

Not offered 1975-76.

Geography 45.342★

Issues in Applied Economic Geography

A problem-oriented course in the field of economic geography. Topics will be drawn from a variety of areas of concern, such as agriculture, resource development, manufacturing and trade. The focus in 1975-76 is the geography of energy.

Prerequisite: Geography 45.220.

Day division, First term: Lectures and discussion three hours a week.

A.I. Wallace

Geography 45.345

Climatology

A course organized around the global energy and water balance regimes of the earth and its atmosphere, and their importance in the patterns of global climate. The various forms of energy transfer are discussed, along with methods of measurement. Theories of climatic change are also discussed, as are such topics as synoptic meteorology, micro-climatology, and statistical climatology.

Prerequisites: Geography 45.210 or permission of the instructor.

Day division: Lectures two hours a week, laboratory three hours a week.

M.W. Smith

Geography 45.350

Western Europe

The physical and cultural regions of Europe will be examined. Emphasis will be placed on the influence of the varying physical and cultural resources on the evolving patterns of European organization and relationships with particular stress on Western Europe.

Not offered 1975-76.

Geography 45.351

Geography of the Northlands

An analysis of the physical characteristics, historical geography, economic resources, settlement patterns and problems and the future development of Arctic and Subarctic lands, focussing especially on Canada and the Soviet Union.

Not offered 1975-76.

Geography 45.360★

Soviet Union

An examination of the problems of the Soviet Union emphasizing locational factors, man/land relationships and areal differentiation.

Not offered 1975-76.

Geography 45.361★

East Europe

An examination of the problems of Eastern Europe emphasizing locational factors, man/land relationships and areal differentiations.

Not offered 1975-76.

Geography 45.370★

Population Geography

Studies of the distributional aspects of population attributes. The areal patterns of population characteristics and their spatial variations associated with differences in the nature of places are examined. Migratory movements are considered within the framework of spatial models of interactions between locations.

Prerequisite: Geography 45.230.

Evening division, Second term: Lectures three hours a week.

Geography 45.374

Local Government Law

Offered as Law 51.374.

Geography 45.380★

Developing Nations of Asia

An analysis of the physical and human resources of selected regions. Special emphasis will be placed on rural development.

Prerequisite: Third year standing.

Evening division, Second term: Lectures three hours a week.

D.P. Fitzgerald

Geography 45.381★

Developing Nations of Asia: Selected Problems

An analysis of selected problems associated with under-development, particularly those relating to population and agriculture.

Prerequisite: Geography 45.380★.

Not offered 1975-76.

Geography 45.390

Development of Geographic Thought and Methodology

The development of ideas and methods in geography. An examination and discussion of original works. Recommended for Honours students.

Prerequisite: Third year standing.

Day division: Lectures three hours a week.

D.P. Fitzgerald

Geography 45.401★

Problems In Human Geography

A course designed to permit a student to pursue his interests in a selected field of human geography. The student prepares papers for discussion with his tutor.

Prerequisites: Final year Honours standing and permission of the Chairman.

Day division, First or Second term: Hours arranged.

Geography 45.402★

Problems In Physical Geography

A course designed to permit a student to pursue his interests in a selected field of physical geography. The student prepares papers as the basis for discussion with his tutor.

Prerequisites: Final year Honours standing and permission of the Chairman.

Day division, First or Second term: Hours arranged.

Geography 45.410

Field Geography

The principles and techniques of analysis, mapping and recording data in the field. Further information may be obtained from the Department.

Not offered 1975-76.

Geography 45.411★

Quaternary Geography

Changes in the physical environment of the Earth during and subsequent to the last ice age. (Also listed as Geology 67.415★.)

Prerequisites: Geography 45.308 and 45.345, or permission of the instructor.

Evening division, First term: Lectures and seminars three hours a week.

Geography 45.412★

Terrain Analysis

Statistical techniques of morphometric and spatial analysis; applications in geomorphology and geography.

Prerequisite: Geography 45.201, or a course in statistical methods and permission of the instructor.

Not offered 1975-76.

Geography 45.413★

Hydroclimatology

Spatial problems of measurement and analysis in the hydrologic cycle.

Prerequisite: Geography 45.345, or permission of the instructors.

Day division, Second term: Lecture/laboratory three

hours a week.

M.W. Smith, T.P. Wilkinson

Geography 45.414★

Microclimatology

Prerequisite: Geography 45.345, or permission of the instructor.

Not offered 1975-76.

Geography 45.415★

Slope Development: Forms, Processes and Stability

The various forms of sloping ground, their origin and present behaviour in relation to environment and materials. Landslides, mudflows, creep, soil erosion; criteria for relative stability.

Prerequisite: Geography 45.308 or permission of the instructor.

Not offered 1975-76.

Geography 45.416★

Engineering Geomorphology

Types of terrain and their significance for resource development and engineering works. Ground surface features and naturally occurring processes will be examined with emphasis on those relevant to highway, pipeline and other construction. (Also listed as Geology 67.418★.)

Prerequisite: Geography 45.210 or permission of the instructor.

Not offered 1975-76.

Geography 45.417★

Glacial Geomorphology

Analysis and significance of glacial landforms and environments.

Prerequisites: Geography 45.310★ and 45.311★, or permission of the instructor.

Day division, First term: Lectures and seminar three hours a week, field trips to be arranged.

J.P. Johnson, Jr.

Geography 45.418★

Selected Topics in Physical Geography

A course focussing on selected topics in Physical Geography. Topic for 1975-76: Soil-water relations and associated issues.

Prerequisites: Fourth year standing and permission of the Department.

Day division, First term: Lecture/discussion/laboratory, three hours a week.

G.C. Topp and members of the Department

Geography 45.421★

Selected Themes in Urban Geography

A seminar developed on selected themes, introduced in Geography 45.320, for example, perception and consumer behaviour in shopping, planning concepts and development; application in the specific context of Ottawa.

Prerequisites: Geography 45.320 and permission of the

instructor.

Evening division, Second term: Seminar three hours a week.

J.E. Tunbridge

Geography 45.422 ★

Urban Social Geography

The spatial aspects of social structure and processes in urban areas are examined in several cultural contexts; concepts of social space, segregation, symbolism and sentiment are examined within an ecological framework. Data collecting and techniques are emphasized. Comparative factorial ecology is the central theme.

Prerequisites: Geography 45.320 and 45.303 ★.

Day division, Second term: Seminar/lectures three hours a week.

D. Bennett

Geography 45.424 ★

Soil Mechanics

Offered as Engineering 82.424 ★.

Geography 45.431 ★

Advanced Cultural Geography

A seminar focusing on selected themes in Cultural Geography. Theme for 1975-76: Linguistic geography using the Celtic peoples as one case example.

Prerequisite: Geography 45.230, or permission of the instructor.

Evening division, First term: Seminar three hours a week.

C.F.J. Whebell

Geography 45.433 ★

Urban Planning

Offered as Engineering 82.333 ★.

Geography 45.434 ★

Transportation

Offered as Engineering 82.434 ★.

Geography 45.435

Historical Geography

The relation of geography and history, the use of primary documents, model building and statistical methods in historical geography. The main focus will be North America.

Prerequisites: Geography 45.220 and 45.303 ★.

Not offered 1975-76.

Geography 45.440

Political Geography

This course examines the geographic structure of the nation state, including capitals and "core areas", boundaries and frontiers, and global patterns of political activity.

Prerequisite: Permission of the instructor.

Day division: Lectures and discussion three hours a week.

D.B. Knight, P.E. Uren

Geography 45.441

Advanced Economic Geography

Aspects of the quantitative analysis of problems in economic geography including industrial location, regional structure, and the evolution of spatial patterns of socio-economic phenomena.

Prerequisites: Geography 45.220 and 45.303 ★.

Day division: Seminar three hours a week.

D.M. Ray

Geography 45.445 ★

Land Resource Use

This course will examine, from both theoretical and empirical approaches, the nature and problems of man's use of land resources. The emphasis will be on non-urban land use in the Western world context. The impact of the urbanization process on land use patterns and conflicts will be explored.

Prerequisites: Geography 45.333 ★ and 45.334 ★. For Fourth year Honours students.

Not offered 1975-76.

Geography 45.498

Honours Research Essay

Candidates for Honours in Geography are required to write an Honours research essay during their final year. The subject for research will be determined in consultation with the Department, and a supervisor will be assigned. The candidate may be examined orally on his essay after presentation.

Prerequisite: Fourth year Honours standing.

Day division: Hours arranged.

Courses Planned for Summer School and Evening Division, 1975-79

Summer 1975

45.200 ★, 45.201, 45.202 ★, 45.220, 45.303 ★, 45.308, 45.350, 45.413 ★, 45.421 ★, 45.431 ★.

Summer 1976

45.101, 45.210, 45.230; two Third year courses; two Fourth year courses.

Summer 1977

45.200 ★, 45.201 ★, 45.202 ★, 45.220; two Third year courses; two Fourth year courses.

Summer 1978

45.101, 45.210, 45.230; two Third year courses; two Fourth year courses.

Evening Division 1975-76

45.101, 45.220, 45.230, 45.305, 45.325, 45.332 ★, 45.37 ★, 45.380 ★, 45.411 ★, 45.421 ★, 45.431 ★.

Evening Division 1976-77 through 1978-79

45.101; two Second year courses; three Third year courses; two Fourth year courses.

Officers of Instruction

Chairman

Robert Gould

Associate Chairman

Jutta Goheen

Professor

E.M. Oppenheimer

Associate Professors

Joseph B. Dallett

Jutta Goheen

Robert Gould

Basil Mogridge

Anna M. Rosenberg

Visiting Associate Professor

Egbert Faas

Sessional Lecturers

Liane Barsony

Annegret Koch

Angelika Manyoni

Ulrike Paul

Gurli Woods

General Information

German language and literature can be seen in various ways: in their historical dimension, with all the wealth of cultural context that that implies; as the subject matter of more theoretical frames of reference such as linguistics or aesthetics; and as contemporary means of communication and illumination. These three approaches all play a part in German studies at Carleton.

The Department's offerings range from German for beginners German 22.015, 22.016, 22.017, and 22.102 to an M.A. program.

It is emphasized that, apart from the slight limitations concerning the maximum number of courses permissible at the Qualifying University year and First year levels (details are to be found in the sections of the calendar outlining faculty regulations), beginners' language courses carry full credit towards a degree.

Students who wish to take a beginners' course followed by a 100-level course, and who believe their intentions may conflict with faculty regulations, are urged to contact the Department without delay.

A number of the Department's courses are taught partly or wholly in German. Students may contact the Depart-

ment to discover the language of instruction in a particular course.

It is helpful if students who, after reading the course descriptions, are in doubt as to which course to take, consult the Department before registration week.

Alternative Undergraduate Programs

There are four alternative undergraduate programs, all of which normally include the following core in German:

1. 22.100 Intermediate German A
or 22.101 Intermediate German B
or 22.102 Intensive Introductory German
2. 22.201 ★ Spoken German
22.202 ★ Written German
3. 22.250 German Literature of the Eighteenth Century

To that core each student during his program, and in consultation with the Department, adds a number of options from German 22.212 ★, 22.280, and higher courses. The number of these options to be added to the core varies according to the program. All Honours students must take at least one full course (or equivalent) at the 400 level.

Single Major

Core plus three courses (or equivalent including half courses), at least one of them at the 300 level; i.e. six in all.

Combined Major

Core plus two courses (or equivalent including half courses), at least one of them at the 300 level; i.e. five in all.

Single Honours

Core plus six courses (or equivalent including half courses); i.e. nine in all.

Combined Honours

Core plus four courses (or equivalent including half courses); i.e. seven in all.

Combined Majors Programs

Combined Majors are possible with a number of other subjects, among them Art History, Music, History, Philosophy, Religion, Linguistics, Latin, English, French,

Spanish, Italian, and Russian. Early consultation with the departments concerned is advised.

Combined Honours Programs

Combined Honours are possible with a variety of subjects. Among the possibilities are German and Art History, German and English, German and French, German and History, German and Latin, German and Linguistics, German and Music, German and Philosophy, German and Political Science, German and Psychology, German and Russian, German and Spanish. Early consultation with the departments concerned is strongly advised. All Honours programs, including combined ones, are designed to serve, where required, as a basis for further work in German at the graduate level.

Graduate Program

The Department of German offers studies leading to the degree of Master of Arts. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

German 22.015

Introductory German A

A beginners' course with emphasis on reading and writing skills, but also including oral practice and aural comprehension. (Guidance in the reading of scientific papers can be arranged in the latter part of the course.) This course normally carries full credit towards a degree.

Day and Evening divisions: Four hours a week.

Summer 1975, Day and Evening divisions.

A.M. Rosenberg and others

German 22.016

Deutsch I

A beginners' course with emphasis on the spoken language, but also teaching reading and writing skills. Extensive oral practice in class and in the language laboratory.

This course normally carries full credit towards a degree.

Day and Evening divisions: Four hours a week.

A.M. Rosenberg and others

German 22.017

Introductory German B

An elementary course using an empirical approach: the discovery of linguistic behaviour and the development of skills will be based directly on texts without the interposition of a grammar book. Enrolment will be limited to one section.

Not offered 1975-76.

German 22.100

Intermediate German A

An extensive review of grammar, and practice in written and spoken German: examples of shorter fiction, and non-fiction, poetry and the drama (such writers as Thomas Mann, Kafka, Brecht, Hildesheimer). One section will place special emphasis on Rechtschaffen and Homberger, *German for Research: Humanities and Social Sciences* (Weber, Freud, Dahrendorf, etc.)

Prerequisite: Grade 11 or 12, German 22.015, 22.016 or 22.017, or equivalent.

Texts: Conant, *Cochran's German Review Grammar, Third Edition*; Rechtschaffen and Homberger, *German for Research: Humanities and Social Sciences* (in one section only); and other readings in German.

Day and Evening divisions: Four hours a week.

Summer 1975, Evening division.

German 22.101

Intermediate German B

The course is designed both to develop language skills and familiarity with German usage and also to provide an acquaintance with some features of German literature in the eighteenth, nineteenth and twentieth centuries. Readings will be drawn from postwar essayistic, journalistic, and literary writing, and from the works of such writers as Goethe, Kleist, Büchner, Keller, Thomas Mann, Kafka, Brecht, and Frisch. Short essays in German, translation, summary writing; the course will be taught largely in German.

Prerequisite: Good standing in Grade 13, or in German 22.015 or 22.016 or in 22.017, or equivalent.

Texts: Spaethling and Weber, *A Reader in German Literature*; and a language instruction text.

Day division: Four hours a week.

German 22.102

Intensive Introductory German (two credits)

An intensive course designed to enable students with little or no previous knowledge of German to reach in one year the level of proficiency normally attained over two years in German 22.015 (or 22.016) and 22.100 (or 22.101). The course will thus provide a basis for majoring in German, but enrolment will not be restricted to intending Majors. Students not making satisfactory progress will be transferred to one of the regular introductory courses (German 22.015 or 22.016).

Prerequisite: Permission of the Department.

Texts: Rogers and Watkins, *German through Conversational Patterns*; Gottfried Keller, *Kleider machen Leute*; Metzger, *Paul Klee*; Böll, *Vier Hörspiele*.

Day division: Six hours a week.

B. Mogridge

German 22.201★

Spoken German

Work in small groups with special emphasis on comprehension and self-expression in everyday spoken German.

Prerequisite: German 22.100, 22.101 or 22.102, or

permission. (This course is not open to native speakers of German.)

Day and Evening divisions: This course lasts from September to April, two hours a week.

A.M. Rosenberg and others

German 22.202 ★

Written German

A course parallel to 22.201 ★, and emphasizing comprehension and self-expression in written German, by such means as essay-writing and translation into and from German.

Prerequisite: German 22.100, 22.101 or 22.102, or permission.

Day and Evening divisions: This course lasts from September to April, two hours a week.

German 22.212 ★

Descriptive Analysis of Present-day German

Problems of German sentence structure presented in the light of current linguistic theories. Semantic change, particularly as the result of linguistic borrowing from American English in written German. Linguistic borrowing as a feature of bilingualism: syntactic and semantic analysis of written and spoken German in Canada.

Prerequisite: German 22.100, 22.101 or 22.102, and Linguistics 29.100, or permission.

Day division, First term: Three hours a week.

J. Goheen

German 22.220

Studies in German Culture and History

Under this general title the department offers courses designed for students who do not have German. (Students specializing in German may take these courses, but they are not counted towards the Department's requirements for a Major or Honours in German.)

Prerequisite: Second year status, or permission.

Not offered 1975-76.

German 22.250

German Literature of the Eighteenth Century

The literature of the Enlightenment, Storm and Stress, and Early Classicism, with special emphasis on the works of Lessing, Goethe and Schiller.

Prerequisite: German 22.100, 22.101 or 22.102, or permission.

Texts: Lessing, *Minna von Barnhelm*; Schiller, *Kabale und Liebe*; Wieland, *Musarion*; Goethe, *Werther*, *Iphigenie*, *Faust I*, *Gedichte*.

Day division: Three hours a week.

German 22.280

German Literature of the Twentieth Century

Representative texts from drama, poetry, and prose fiction, in the period from Hauptmann to Grass.

Prerequisite: German 22.100, 22.101 or 22.102, or permission.

Texts: Lohner and Hannum, *Modern German Drama*; Hamburger and Middleton, *Modern German Poetry*;

Zohn, *Der farbenvolle Untergang, österreichisches Lesebuch*; T. Mann, *Felix Krull*; Kafka, selected stories; Böll *Das Brot der frühen Jahre*; Grass, *Katz und Maus*; H. Kant, *Ein bisschen Südsee*.

Evening division: Three hours a week.

German 22.301 ★

Advanced Spoken German

A sequel to German 22.201 ★, this course includes a wider range of spoken German: the language not only of conversation but also of more formalized speech, to be practised and also to be studied from texts.

Prerequisite: German 22.201 ★ or 22.202 ★, or permission.

Day division: This course lasts from September to April, two hours a week.

German 22.302 ★

Advanced Written German

A sequel to German 22.202 ★. This course aims at ensuring a good appreciation of the subtleties of modern written German and a high degree of articulacy in using it oneself.

Prerequisite: German 22.202 ★ or 22.212 ★, or permission.

Evening division: This course lasts from September to April, two hours a week.

German 22.312

Linguistic Stylistics

Analysis of semantic, grammatical and syntactic problems as a basis for defining personal styles and constituents of a period style. Texts include representative examples from the prose of early nineteenth century writers (such as Eichendorff, Kleist), the early twentieth century (Thomas Mann, Rilke, Kafka), and contemporary literature (Grass).

Prerequisite: German 22.202 ★ or 22.212 ★, or permission.

Not offered 1975-76.

German 22.340 ★

German Literature of the Sixteenth Century

Readings in imaginative literature (e.g., Hans Sachs, the mannerist Johann Fischart, and the *Faustbuch*), and also in non-fictional prose (parts of Dürer's journal, Paracelsus' treatise on the *Elementargeister*); particular emphasis on the German Reformation, including Luther's translation of the Bible (in excerpt), selected hymns, and polemical writings by orthodox Protestants, Catholics, and Spiritualist dissenters; examples of such genres as verse satire (Brant's *Narrenschiff*), *Meistersang*, Biblical drama, and the *Fastnachtspiel*.

Prerequisite: German 22.250, or permission.

This course alternates with 22.341 ★.

Not offered 1975-76.

German 22.341★

German Literature of the Seventeenth Century

An introduction to the literature of the German Baroque. Prose fiction will be represented by Grimmelshausen's allegorical-picaresque novel, *Courasche*; the drama by Bidermann's *Cenodoxus* (tr. Meichel), and Gryphius' double comedy, *Verliebttes Gespenst* and *Die geliebte Dornrose*; a broad spectrum of lyric poetry will be considered (through Wagenknecht's anthology, *Gedichte 1600-1700*) with special emphasis on religious ecstasy, epigrammatic intensity, and erotic fascination in some six major poets.

Prerequisite: German 22.250, or permission.

Day division, First term: Three hours a week.

German 22.370

German Literature of the Nineteenth Century

Aspects of the literature between Romanticism and Naturalism: "Biedermeier", "Junges Deutschland", "Vormärz", and Poetic (or Bourgeois) Realism; such writers as Grillparzer, Hebbel, Büchner, Heine, Stifter, Keller.

Prerequisite: German 22.250, or permission.

Not offered 1975-76.

German 22.380★

Special Topic in Twentieth Century German Literature

The course focuses on a selected topic to be drawn from the literary movements, genres, authors or themes of the period. In 1975-76 the course will deal with the literature of East Germany, using both selected literary texts (examples of fiction, poetry, and drama) and some background materials of a more theoretical or more overtly political kind.

Prerequisite: German 22.202★ or 22.212★ or 22.250 or 22.280, or permission.

Texts: Walwei-Wiegelmann, *NeuereDDR-Literatur, Texte und Materialien*; Hamburger, *East German Poetry, an Anthology*; Wolff, *Fahrt mit der S-Bahn, Erzähler der DDR*; Plenzdorf, *Die neuen Leiden des jungen W.*

Day division, Second term: Three hours a week.

Basil Mogridge

German 22.412★

Language and Society in Twentieth Century Germany

Language as a means of manipulation with political and economic aims (language in the totalitarian state, and the language of advertising); divided German (the language of political speeches in the Federal Republic of Germany and the German Democratic Republic); class connotations of contemporary literary language (Grass, Hermann Kant).

Prerequisite: German 22.212★, 22.340★, 22.341★ or 22.430, or permission.

Day division, First term: Three hours a week.

Jutta Goheen

German 22.430

Medieval Language and Literature

Detailed linguistic and stylistic examination of representative examples of "Minnesang" and of the popular and courtly epic.

Prerequisite: German 22.250, or permission.

Not offered 1975-76.

German 22.451★

Goethe (I)

An introduction to Goethe's literary oeuvre after 1805, with more detailed examination of *Wilhelm Meisters Wanderjahre* and *West-östlicher Divan*.

Prerequisite: German 22.250, or permission.

Day division, Second term: Three hours a week.

E.M. Oppenheimer

German 22.452★

Goethe (II)

Novellen and poetry of the older Goethe.

Prerequisite: German 22.250, or permission.

Not offered 1975-76.

German 22.460

German Romanticism

The intellectual and cultural foundations of German Romanticism and its principal literary manifestations in the lyric, the drama and the novel.

Prerequisite: German 22.250, or permission.

Not offered 1975-76.

German 22.470

Seminar on a Literary or Linguistic Topic

Postromantic nineteenth century literature; Novelle and drama. In the First term the course will examine the development of the Novelle and of theories of the Novelle from Tieck to Hauptmann: works by such additional authors as Droste-Hülshoff, Keller, Stifter, Storm, Meyer, Heyse and Hauptmann. In the Second term, after consideration of *Faust II*, individual plays by Grillparzer, Büchner, Hebbel, Hauptmann, and Wedekind will be discussed in the context of the authors' work as a whole and of the literary and sociological background to which they relate: major issues of dramatic theory.

Prerequisite: Permission.

Day division: Three hours a week.

Robert Gould, Egbert Faas

German 22.471★

Seminar on a selected topic

Prerequisite: Permission.

Not offered 1975-76.

German 22.490★

Tutorial on a selected topic

Primarily for Honours students in their final year. A genre, an author or a group of authors will be selected; methods of literary criticism are considered.

German 22.491

Tutorial

As above, but offered for full-course credit with a corresponding enlargement of scope and assignments.

German 22.499

Honours Essay

An option for final-year Honours students.

Graduate Courses Open to Undergraduate Students

The attention of Honours students is drawn to the courses offered by the Comparative Literature Committee; and to the following 500 level courses offered in the M.A. program of the Department of German.

German

22.530 ★ Literary Theory

22.541 ★ Genres in German Literature

22.560 ★ Period Studies

22.561 ★ Period Studies

22.570 ★ Individual Authors

Courses Planned for Summer School and Evening Division, 1975-78

Summer 1975

22.015, 22.100.

Evening Division 1975-76

22.015, 22.016, 22.100, 22.201★, 22.202★, 22.280, 22.302★.

Summer 1976

22.015, 22.016, 22.100, 22.490★.

Evening Division 1976-77

22.015, 22.016, 22.100, 22.201★, 22.202★, 22.301★, 22.312.

Summer 1977

22.015, 22.016, 22.100.

Evening Division 1977-78

22.015, 22.016, 22.100, 22.201★, 22.202★, 22.250, 22.341★.

Department of History

Officers of Instruction

Chairman

Peter J. King

Co-ordinator, St. Patrick's College

J. Greatrex

Professors

J.G. Bellamy

Desmond G. Bowen

David Chung (*St. Patrick's College*)

Gordon S. Couse

David M.L. Farr

Michael G. Fry

H.A. MacDougall (*St. Patrick's College*)

S.R. Mealing

H. Blair Neatby

Michael J. Sydenham

Sydney F. Wise

Associate Professors

B. Carman Bickerton

G. Peter Browne

R.T. Clippingdale

J. Nicoll Cooper

R.C. Elwood

Robert B. Goheen

J. Greatrex (*St. Patrick's College*)

Naomi E.S. Griffiths

T. Murray Hunter

J.K. Johnson (*St. Patrick's College*)

R.A. Jones

Peter J. King

Paul C. Merkley (*St. Patrick's College*)

R.E. Reynolds

John W. Strong

Assistant Professors

Marilyn J. Barber

E. Peter Fitzgerald

G.F. Goodwin

Deborah G. Gorham (*St. Patrick's College*)

F.J.K. Griezic (*St. Patrick's College*)

Edward R. Kantowicz

John LaGrand

Mark Phillips

John H. Taylor

Norman M. Willis

Sessional Lecturers

Jaroslav A. Boucek

K. Calder

G.N. Hillmer

D.C. Savage

Programs of Study

Every student who elects History as a Major or Honours subject, or who undertakes graduate work in History, will plan the whole of his program in consultation with a departmental program adviser whose approval is necessary each year before registration is complete. Departmental advisers for students in History programs are:

Major students, R.A. Jones

Honours students, G.S. Couse and M.J. Sydenham

Graduate students, S.F. Wise and R.T. Clippingdale

Major Programs

Major in History

1. Students Majoring in History are to take a minimum of six History courses, as follows:

- (a) One 100-level course, to be taken in the First year;
- (b) At least two 200-level courses, to be completed by the end of the Second year. A third 200 level course is usually recommended;
- (c) At least two 300-level courses, to be taken in the Third year. The Department may permit a third 300-level course in lieu of a third 200-level course.

2. Of the six courses required (at the 100, 200 and 300 levels) either at least one from each field or two from each of two fields shall be taken, and not more than two shall be taken entirely in the history of any one country. The fields are:

- (a) medieval and early modern Europe
- (b) modern Europe
- (c) North America

In order to continue in the Major program, a student must attain a grade of C- or better in a First year History course and must maintain at least a C- average over all History courses taken.

Combined Majors

For Major programs combining History with another subject, the general rule is that they must include at least four courses in History, at least one of them at the 300 level.

Honours Programs

Honours in History

1. The Honours program requires at least ten or eleven courses in History, as follows:

- (a) One 100-level course, to be taken as part of the First

year;

(b) Two 200-level courses, to be taken in the Second year;

(c) Three 300-level courses, to be taken in the Third year and to include History 24.388;

(d) Four or five 400-level courses, to be taken in the fourth year and to include History 24.490 (Honours Comprehensive) and History 24.491 (Directed Studies).

2. Honours students in the Fourth year will take five courses altogether, all at the 400 level, one of which may be outside the Department.

Normally, not more than two 400-level History seminars may be taken in any one of the following five areas: (1) medieval and early modern Europe (2) modern western Europe (3) Russia and eastern Europe (4) Great Britain and the Commonwealth (5) North America. A student may elect to present a research essay (History 24.499) in place of any two other 400-level courses except History 24.490 and History 24.491.

Students will be required to show a proficient reading knowledge of French. A student may substitute another language with the permission of the Department if it is more appropriate to his program.

Students intending to enter the Honours program are advised to do so as early as their intentions are settled, and not later than the beginning of the Third year. All students who meet the general University Honours requirements, and who have at least second class standing in History, will be admitted to, and permitted to continue in the Honours program. Students with third class standing in History will be given individual consideration on application to the Department. An Honours student must have his program approved at registration by a departmental adviser. Honours students in good standing, whose course patterns meet the regulations in *Major in History*, paragraph 2, may revert to the Major program with a B.A. at the end of the Third year. Students who have not taken History 24.388 in their Third year will require the permission of the Department to enter the Fourth year. In determining the class of an Honours candidate's degree, the Department will average his grades on all History courses, those on the 400-level courses being given double weight.

Combined Honours Programs

For Honours programs combining History with another subject, the general rule is that they must take at least six courses in History to include History 24.490 (Honours Comprehensive) or History 24.491 (Directed Studies) and one 400-level seminar.

Classical Civilization Courses

The History Department cross-lists several courses

offered in Classical Civilization by the Department of Classics.

No more than two classical civilization courses may be included in the six courses required for the Major program; no more than three in the Honours program.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Prerequisites

Unless otherwise stated, the prerequisite for any 300-level course is:

1. A 200-level course, preferably in an appropriate field (for fields, see *Major in History*, paragraph 2); or
2. Permission of the Department.

The prerequisite for any 400-level course is:

1. Two 300-level courses with one course at either the Second or Third year level in an appropriate field; or
2. Permission of the Department.

Courses Offered

History 24.014

The Origins of North American Society

An examination of the manner and extent to which institutions and social structures transplanted from Europe developed new patterns from the seventeenth to the nineteenth centuries and became characteristically North American.

Day and Evening divisions: Three hours a week.

B.C. Bickerton, S.R. Mealing

Note: Students who elect History as their Major or Honours subject are required to take either History 24.105 or 24.112 or 24.113 or 24.114.

History 24.105

Civilization during the Middle Ages

An introduction to the development of the civilization which characterized the West from the decline of the Roman Empire until the Renaissance.

Day division: Three hours a week.

J.G. Bellamy, J.J. LaGrand, R.E. Reynolds

History 24.112

Europe in Modern Times

A study of some dominant themes in the making of modern Europe from the Renaissance to the present day.

Day division: Three hours a week.

E.P. Fitzgerald, M. Phillips, N.M. Willis

History 24.113

European History

A political and diplomatic history of Europe from 1715 to 1919.

Day and Evening divisions: Three hours a week.

R.A. Jones, M.J. Sydenham

History 24.114

The Origins of North American Society

See History 24.014.

History 24.205

England during the Middle Ages

A study concentrating on the political development of medieval England and her French possessions, A.D. 1066-1485.

Day Division: Three hours a week.

J.G. Bellamy

History 24.206

France and Germany during the Middle Ages

A study concentrating on the political development of the Merovingian and Carolingian Kingdoms, the Holy Roman Empire, and Capetian France.

Day division: Three hours a week.

J.J. LaGrand, R.E. Reynolds

History 24.207

Social and Economic History of the Middle Ages

A study of the economic development and social history of medieval Europe. Topics will include the commercial revolution, feudalism, chivalry, and the crusades.

Not offered 1975-76.

History 24.214

Church, State and Society from the Reformation to the Present

A study of Christian thought and institutions and their influence on the appearance of nation states and on the growth of modern pluristic society in Europe and America.

Evening division: Three hours a week.

D.G. Bowen

History 24.215

Early Modern Europe: from Dante to Descartes

Themes in the social, political and intellectual history of early modern Europe. Lectures and readings on politics and society will be organized in units structured around a series of major European intellectuals. Representative topics include urban life; commerce and communications; science and exploration; magic and religion;

new styles in art, literature and social thought.

Day division: Three hours a week.

J.J. LaGrand, M. Phillips

History 24.216

The French Revolution and the Revolutionary Tradition in France 1783-1968

A study of the causes, course and consequences of the French Revolution and of its significance in the social and political development of modern France. Where appropriate, attention will be given to the impact of Revolutionary ideas upon other European states.

Not offered 1975-76.

History 24.230

Canada from 1763

The political, economic and social development of the British North American colonies of 1763 to the Canada of today.

Day and Evening divisions: Three hours a week.

M.J. Barber, R.T. Clippingdale, H.B. Neatby, J.H. Taylor, S.F. Wise

History 24.235

The Expansion of Europe

A comparative analysis of the colonial and commercial expansion of Europe to the late eighteenth century, with special reference to the First British Empire.

Not offered 1975-76.

History 24.240

History of the United States of America

This course will consider the history of the United States in the national period, emphasizing political and economic factors.

Day division: Three hours a week.

G.F. Goodwin, P.J. King

History 24.256

Comparative History of Great Britain and France

A comparative study of political and social developments in two major countries of Western Europe, from the later middle ages to the nineteenth century.

Not offered 1975-76.

History 24.260

History of Russia and the U.S.S.R.

A survey of Russian history from Kiev to the present, with emphasis on the period from the reign of Peter the Great to the Revolution of 1917.

Day division: Three hours a week.

R.C. Elwood

History 24.275

History of Africa

An introduction to the history of Africa. The first half will be devoted to the period prior to European colonization with emphasis on West African states and empires; the second half will deal with resistance to colonization, European colonial rule, independence and liberation

movements.

Evening division: Three hours a week.

D.C. Savage

History 24.280

Problems in the Diplomacy of the Great Powers 1789-1890

A study of selected problems in international relations from the beginning of the French Revolution to the fall of Bismarck.

Evening Division given as History 03.280 at St. Patrick's College.

History 24.281

War in the Modern World: Renaissance to Nuclear Age

A study of changing concepts of warfare in the western world, and their political, economic and technological implications, from the sixteenth century to 1945.

Day division: Three hours a week.

T.M. Hunter

History 24.290

Greece in the Ancient World

Offered in the Department of Classics as Classical Civilization 13.290.

History 24.291

Rome in the Ancient World

Offered in the Department of Classics as Classical Civilization 13.291.

History 24.301

The Hellenistic Age 323-31 B.C.

Offered in the Department of Classics as Classical Civilization 13.301

History 24.302

The Late Roman History 285-500 A.D.

Offered in the Department of Classics as Classical Civilization 13.302

See note on p. 127.

History 24.305

Cultural and Intellectual History of the Middle Ages

A pro-seminar on topics in the cultural and intellectual history of the Middle Ages from late patristic antiquity to the fourteenth century. Among the topics studied will be medieval bookmaking, monasteries, libraries, universities, literature, writing of history, theology, philosophy and liturgy.

Evening division: Three hours a week.

R.E. Reynolds

History 24.310

Problems in the History of Ideas

A study of historical problems associated with selected intellectual movements, such as humanism, theocracy, modern scientific thought, romanticism and contem-

porary ideologies.

Offered at St. Patrick's College 1975-76.

History 24.313★

Historical Writing and Political Thought in Renaissance and Reformation Europe

This course will examine a series of political and historical thinkers in relation to early modern society. Representative figures include Marsilius, Machiavelli, Guicciardini, Botero, Bodin, Campanella.

Prerequisite: History 24.215, or permission of the instructor.

Day division, Second term: Three hours a week.

M. Phillips

History 24.314★

Art, Humanism, and Civic Life in the Renaissance

An intellectual history of the Renaissance examining the image of man in aesthetic and humanistic literature. Reading will be in primary and secondary sources.

Prerequisite: History 24.215, or permission of the instructor.

Day division, First term: Three hours a week.

M. Phillips

History 24.315

European Economic History

Offered in the Department of Economics as Economics 43.315.

History 24.316

Politics and Society in Modern France 1870-1970

A study of the men, conflicts and national crises that have worked to shape the lives of five generations of Frenchmen from the Franco-Prussian war to the death of Charles de Gaulle, with special attention to the period since 1934.

Not offered 1975-76.

History 24.318

German Unity and Nationality

Studies in the development of a political identity in the German world since 1806, including the influence of nationalism on German politics.

Day division: Three hours a week.

N.M. Willis

History 24.320

The Origins of Socialism

Studies in the development of the European socialist tradition, tracing the growth of socialist theory and the rise of socialist movements in Europe from the eighteenth to the twentieth century.

Evening division: Three hours a week.

E.P. Fitzgerald

History 24.325

The Economic Development of Canada

Offered in the Department of Economics as Economics 43.325.

History 24.330

Social History of Canada

Studies in the structure and values of Canadian societies from the eighteenth to the early twentieth century, with special reference to the effects of urbanization. First term: Themes and readings in Canadian social history. Second term: Research seminars in Canadian social history.

Day division: Three hours a week.

J.H. Taylor

History 24.331

French Canada since Confederation

A political and intellectual history of French Canada with emphasis on the development of French Canadian nationalism. Students will be expected to read both French and English sources.

Day division: Three hours a week.

H.B. Neatby

History 24.332

The Maritime Provinces 1750-1900

The social, religious, ethnic and economic background of the politics of the Maritime Provinces.

Day division: Three hours a week.

S.F. Wise

History 24.334

Canada-United States Relations

An examination of Canadian-American relations in the political, diplomatic and economic fields, with particular attention to the relationship in the twentieth century.

Day division: Three hours a week.

D.M.L. Farr

History 24.336

Canadian External Relations

The development of Canadian attitudes and policies toward external affairs in the years since 1867.

Evening division: Three hours a week.

G.N. Hillmer

History 24.337

The Emergence of the Political Tradition in Canada

An examination of Canadian politics (politicians, parties, ideas and social context) from the late eighteenth century to the present. Special emphasis will be given to the post-Confederation period.

Day division: Three hours a week.

R.T. Clippingdale

History 24.343★

The Progressive Era in the United States

A survey of politics and social history from 1896-1920. Special emphasis will be given to the problems of industrialization, race and ethnicity during the period.

Not offered 1975-76.

History 24.344★

Contemporary America: 1940 to the Present

This course will examine the social and political development of the United States from the Second World War in the overall context of the twentieth century. The genesis of contemporary issues in the 1920's and 1930's will be considered.

Day division, Second term: Three hours a week.

P.C. Merkley

History 24.345★

American Urban History

An introduction to the major patterns of urban growth and development in the United States. Particular cities are used as case studies, but an attempt is made to generalize about the functions, shapes, and problems of cities. The major emphasis is on the nineteenth century. Not offered 1975-76.

History 24.346★

American Immigration and Ethnic Groups

An introduction to the major currents of both urban and rural immigration to the United States and the formation of distinct ethnic groups in American society. The major emphasis is on the period of unrestricted immigration from 1820 to 1921.

Not offered 1975-76.

History 24.347★

The Negro in the United States

A study of the Negro in the United States, which will concentrate on his experience under slavery and the recurring themes of integration and separatism after emancipation.

Day division, First term: Three hours a week.

G.F. Goodwin

History 24.348

American Intellectual History

An examination of American thought from the colonial period to the twentieth century, with emphasis on political, social and religious ideas and their relation to American society and institutions.

Day division: Three hours a week.

P.J. King

History 24.350

British Constitutional History

A survey of the development of the British constitution.

Day division: Three hours a week.

G.P. Browne, R.B. Goheen

History 24.358

The Political Framework of Social England From the Sixteenth Through the Nineteenth Centuries

An enquiry into some major political institutions in England as they reflect social change and stability.

Day division: Three hours a week.

R.B. Goheen, J.N. Cooper

History 24.360

History of the U.S.S.R.

A political and diplomatic history of Soviet Russia from 1917 to the present.

Not offered 1975-76.

History 24.361★

The Russian Empire

The expansion and development of the Russian Empire from the fourteenth century to 1917, with emphasis on Siberia and Central Asia.

Day division, Second term: Three hours a week.

J.W. Strong

History 24.365

History of Eastern Europe

A survey of Eastern European history from the early eighteenth century to the present with emphasis on the histories of Poland, Czechoslovakia and Hungary.

Evening division: Three hours a week.

J.A. Boucek

History 24.370

The Rise and Fall of the British Empire

The evolution of the British Empire following the American Revolution analyzing the forces behind its establishment, emphasizing political, economic and social factors and concluding with its transformation into the modern Commonwealth.

Day division: Three hours a week.

G.P. Browne, D.M.L. Farr

History 24.377

The Irish in Modern History: A Problem in Historical Ethnicism

A study of the development of the two peoples of Ireland, Anglo-Irish relations since Elizabethan times, the influence of the diaspora Irish in home affairs, and the contribution of the Irish to developments in England, Canada, the United States and other areas.

Day division: Three hours a week.

D.G. Bowen

History 24.380

Diplomacy of the Great Powers, 1890-1945

A study of the relations of the great powers in the years before 1914; wartime diplomacy and the peacemaking of 1919-23; inter-war diplomacy and the origins of the Second World War; and the relations of the powers 1939-45.

Evening division: Three hours a week.

K. Calder

History 24.381

Britain and Europe in the Nineteenth Century

A study of British foreign policy, its aims and motives, from the end of the Napoleonic War to the opening of the First World War.

Day division: Three hours a week.

R.A. Jones

History 24.385★

Modern China

A political history of China from the early nineteenth century to the present with emphasis on Chinese reaction to western impact.

Day division, First term: Three hours a week.

J.W. Strong

History 24.386★

Modern Japan

The political, social and economic development of Japan during the Meiji, Taisho and Showa periods.

Day division, Second term: Three hours a week.

J.W. Strong

History 24.388

Historical Theory and Method

An examination of questions concerning the nature and value of historical enquiry and the meaning of the course of history.

Day and Evening divisions: Three hours a week.

G.S. Couse

History 24.405

Society, Law, and Politics in the Middle Ages

A seminar on one or more of the following topics: crime and criminal law in medieval England, canon law, ecclesio-political theory. While not prerequisites, it is hoped that students will have a knowledge of Latin and will have taken one of Law 51.100, 51.386★, or Political Science 01.280.

Day division: Three hours a week.

J.J. LaGrand, R.E. Reynolds

History 24.416

The French Revolution

A seminar on selected problems in the history and interpretation of the French Revolution, with particular attention to the development of democracy. Students will be expected to read both French and English sources.

Day division: Three hours a week.

M.J. Sydenham

History 24.429

Selected Problems in Greek and Roman History

Special topic for 1975-76 is "Herodotus and the Persian Wars". Offered in the Department of Classics as Classical Civilization 13.429. Open to Third and Fourth year History students.

T.R. Robinson

See note on p. 127.

History 24.430

Selected Problems in the Social and Economic History of Upper and Lower Canada

A seminar on the social and economic history of Upper and Lower Canada to 1840.

Day division: Three hours a week.

S.R. Mealing

History 24.431

French Colonial Society

A seminar and tutorial in which the character of settlement and society in the French colonies in North America will be examined and compared with examples of other North American colonial societies.

Evening division: Three hours a week.

B.C. Bickerton

History 24.432

Seminar on Acadian History

This seminar will examine the establishment of European settlement in "Acadie" or Nova Scotia, the development of Acadian traditions pre- and post 1755, including the Acadian reaction to exile, emphasizing community development and Acadian social characteristics and offering the possibility of comparative studies with other settlements both in Europe and North America. Considerable emphasis will be placed upon the use of documentary material.

Not offered 1975-76.

History 24.433

Selected Problems in the Social and Political Development of Twentieth Century Canada

A seminar on problems arising from the impact on Canadian society of rapid immigration, the two world wars and the great depression.

Not offered 1975-76.

History 24.434

Aspects of Canadian nationalism, 1867-1918

A seminar on selected topics in the politics and thought of Canadian nationalism in the first half of the post-Confederation period.

Day division: Three hours a week.

R.T. Clippingdale

History 24.435

Confederation

A seminar on the social, political, and economic bases of the Confederation movement, on the achievement of Confederation and on the constitutional problems arising from the British North America Act.

Day division: Three hours a week.

G.P. Browne

History 24.438

Selected Problems in Canadian Labour History, 1873-1956

A seminar studying the organization of the working class in industrial history.

Evening division: Three hours a week.

F.J. Griezic

History 24.440

A Selected Period in United States History

A seminar which considers the relationship between the political, social, economic and intellectual aspects of one of the following periods: (a) The early national

period, 1783-1816; (b) the age of Jackson, 1824-46; (c) the progressive era, 1896-1912; (d) the interwar years, 1920-41. For 1975-76 the period will be: the interwar years 1920-41.

Day division: Three hours a week.

G.F. Goodwin

History 24.441

Selected Problems in American History

A seminar in which selected topics in the history of the United States during the nineteenth and twentieth centuries will be considered.

Not offered 1975-76.

History 24.457

Selected Problems in Tudor and Stuart History

A seminar concentrating on aspects of English group and community organization and power in the Tudor and early Stuart period.

Day division: Three hours a week.

R.B. Goheen

History 24.458

Selected Problems in Nineteenth Century British History

A seminar on mid nineteenth century social reform and its social background.

Evening division: Three hours a week.

J.N. Cooper

History 24.460

Selected Problems in Russian History

A seminar on selected problems relating to the expansion and decline of Imperial Russia.

Day division: Three hours a week.

J.W. Strong

History 24.461

Selected Problems in Soviet History

A seminar on selected problems relating to the establishment and subsequent course of the Soviet Union.

Not offered 1975-76.

History 24.470

Selected Problems in Colonial History

A seminar concerned with political, economic, social, strategic and humanitarian developments in several colonies. Periods, area and aspects may vary but in general the British colonies since 1763, principally in North America, Africa and Australasia, will be compared and contrasted on the basis of primary material.

Prerequisite: History 370 or permission of the instructor.

Day division: Three hours a week.

G.P. Browne

History 24.480

Selected Problems in the Diplomacy of the Great Powers, 1906-39

A seminar on selected problems in diplomatic history from the origins of the First World War.

Not offered 1975-76.

History 24.481

Diplomatic and Strategic Problems of the Second World War

A seminar on problems selected from major politico-strategic issues of the outbreak, conduct and aftermath of the Second World War.

Day division: Three hours a week.

T.M. Hunter

History 24.490

Honours Comprehensive

Required of candidates for Honours in History, this will be a written examination in a special field with general questions relating to historical thought.

Day and Evening divisions.

Members of the Department

History 24.491

Directed Studies

A course required of candidates for Honours in History in their fourth year. It will consist of supervised reading and reports in an area of history.

Day and Evening divisions.

Members of the Department

History 24.499

Honours Research Essay

Open to candidates for Honours in History in their Fourth year. The subject for research will be settled in consultation with the Department and a supervisor will be assigned. The candidate will be orally examined upon his essay after presentation. This course carries double credit.

Day division.

Members of the Department

Courses Offered at St. Patrick's College*History*

03.101 Introduction to Modern History

03.220 Our Medieval Heritage

03.232 History of Canada

03.280 History of the United States since 1763

03.310 Problems in the History of Ideas

03.320 Cathedral and Town

03.325 Canadian Economic History

03.335 Canadian Farm and Labour Movements since Confederation

03.344 Women in Antiquity

03.352 British North America 1760-1867

Courses Planned for Summer School and Evening Division, 1974-78*Summer Sessions*

Courses regularly offered include 24.105 or 24.112 or 24.113; 24.230 and at least one other 200-level course; 24.388* and at least one other 300-level course; a Fourth-year Honours seminar.

Evening Divisions

24.113, 24.230, 24.240, 24.388*;

additional courses at the 200 and 300 level will also be offered, and will be as representative as possible of the fields required for the Bachelor of Arts degree; at least two 400-level seminars.

*24.388 will normally be given in both Evening division and Summer sessions. When this is not possible it will be given at least in the Evening division or the following Summer session every year.

Interfaculty Courses

Humanities

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First year standing or higher.

Day division: Lectures three hours a week.

B. Wand and others

Humanities 10.200

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from the points of view of history, philosophy, social science and literature.

Prerequisite: Second year standing or higher.

Day division: Lectures two hours a week.

Not offered 1975-76.

Science

Science 60.100

Man and His Environment (for Non-Science Students)

Introductory lectures treat the historical background of science, development of scientific methodology, and what science is and is not. The first half of the First term explores the origin, development, and evolution of the universe, stars, planetary systems, the elements, the earth, bio-chemicals, and life on earth. The goal is to show where man is in the universe, what he is, and how he came to be, as learned by science. The second half of the First term explores the subjects of evolution and ecology, or the generalizations of how living things live and respond in relationship to other living things, and the non-living environment, without emphasis on man. The Second term explores the activities of man and their ecological consequences, or their impact on the environment. Topics include man's evolution and his use and abuse of land, nature, fire, water, the oceans, air, and wildlife. Pollution topics include water, air, heat, radiation, insecticides, organic and inorganic chemicals and pest species. Lastly are considered human problems of the house, the city, transportation, solid wastes, human population growth characteristics, the growing demand for food, a search for causes (religion, economics, etc.), the limits to growth, the future, and what can be done.

Day division: Lectures three hours a week.

S. Peck

Other Courses

Computing Science, see p. 382.

Technology, Society and Environment Studies, see p. 390.

St. Patrick's College Interdisciplinary courses, see p. 236.

Officers of Instruction

Chairman

R.L. Jackson

Associate Professor

R.L. Jackson

Assistant Professors

M. Ciavolella

Claudia Persi Haines

F. Loriggio

Sessional Lecturers

Tomas Cabezon

Giovanna Panico

Supervisors of Majors and Honours

M. Ciavolella

Claudia Persi Haines

General Information

The Department offers Major, Combined Major and Combined Honours programs in Italian. Interested students should consult members of the Department to plan their programs in accordance with existing and expected future courses. The Department endeavours within its limited resources to offer essential courses for these programs annually during the Evening division. All sectioned courses are scheduled annually in the Evening (Italian 26.015, 26.100, 26.201★), and three literature courses, one at the 200 level, one at the 300 level and one at the 400 level are available annually in the Evening.

Study Abroad

The Department has established the policy of giving language and civilization courses every summer in Italy. Interested students should contact the Department early in the year for information regarding financial assistance, itinerary, and courses planned.

Major Programs

The requirements for the Major in Italian are a minimum of five courses after Italian 26.100 or equivalent, three of which must be 26.205 and two literature courses at the 300 or 400 level. It is possible as well to take a Combined Major in Italian and another discipline. Requirements of the Department for the Combined Major are four courses in Italian after Italian 26.100, including 26.205 and a 300- or 400-level literature course.

Combined Honours Program

Students admitted to Combined Honours programs are required to complete at least twenty credits of which at least six must be in Italian beyond the First year level. Their programs should include Italian 26.205 and two literature courses at the 300 level and one at the 400 level. An Honours Research Essay is available.

Courses Offered

Italian 26.015

Introduction to Italian

A beginning course designed to give the student the fundamentals of written and spoken Italian. Grammar, reading and oral practice.

Day and Evening divisions: Lectures and laboratory four hours a week.

Italian 26.100

Intermediate Italian

A course intended to consolidate and supplement knowledge of the language and culture acquired in Italian 26.015. Reading of literary texts, composition and oral practice.

Prerequisite: Italian 26.015 or equivalent.

Day and Evening divisions: Lectures and laboratory four hours a week.

Italian 26.105

Intermediate Italian for Dialettologi

A course designed for students of Italian origin who speak Italian dialects but have had no formal training in standard Italian.

Prerequisites: Permission of the Department.

Day and Evening divisions: Lectures and laboratory four hours a week.

Italian 26.201★

Italian Conversation

Conversation and discussion of general and current problems, including occasional written work.

Prerequisite: Italian 26.100, or permission of the Department.

Day and Evening divisions, First term: Three hours a week.

Italian 26.202★

Italian Composition

A course designed to utilize the achievements attained in Italian 26.100, particularly with the view to enabling students to write fluently in Italian.

Prerequisite: Italian 26.100, or permission of the Department.

Day division, Second term: Three hours a week.

Italian 26.205

Introduction to the Study of Italian Literature

This course is designed to introduce the student to Italian Literature. Emphasis will be placed on the textual analysis of representative works. Required for Majors and Honours.

Day division: Three hours a week.

F. Loriggio

Italian 26.210

The Italian Heritage: Literature, Arts and Society in Italy from the Thirteenth Century to the Present Time

This course, to be given in English, deals with the literary, artistic and social development of Italy.

Evening division: Three hours a week.

C.P. Haines

Italian 26.220

Background to the Study of Italian Literature

A first-hand introduction to the culture, history and art of Italy. The course, to be given in Italy, will be offered in both Italian and English. The Italian section is designed for students who intend to take courses in a Major or Honours Program. Students taking the English section will receive credit as an Arts option.

Italian 26.301★

Advanced Oral Italian

An advanced sequel to Italian 26.201★.

Prerequisites: Italian 26.201★, 26.202★, or permission of the Department.

Day division, First term: Three hours a week.

Italian 26.302★

Advanced Composition

An advanced sequel to Italian 26.202★.

Prerequisites: Italian 26.201★, 26.202★, 26.301★, or permission of the Department.

Day division, Second term: Three hours a week.

Italian 26.310

Italian Literature I: From the Thirteenth Century to the End of the Renaissance

This course will trace the development of the genres of Italian literature during the period indicated. Each of the genres, i.e. poetry, *novella*, heroic poem, theatre, will be given separate and extensive attention.

Evening division: Three hours a week.

F. Loriggio

Italian 26.320

Italian Literature II: From the End of the Renaissance to the Twentieth Century

This course will trace the development of the genres of Italian literature during the period indicated. Each of the genres, i.e. poetry, novel, theatre, will be given separate and extensive attention.

Not offered 1975-76.

Italian 26.391

Special Studies I

A course designed to investigate special problems or aspects of Italian literature in greater depth than they are covered in the other literature courses at the 300 level. A variety of topics to be offered on a rotating basis.

Suggested topic for 1975-76: The Italian Short Story.

C.P. Haines

Italian 26.400

Dante

An intensive study of Dante and his age with particular reference to the *Divina Commedia*.

Prerequisites: Italian 26.205, 26.310, or permission of the Department.

Day division: Three hours a week.

M. Ciavolella

Italian 26.410

Italian Theatre: From Goldoni to Pirandello

A study of Italian dramatic works with particular emphasis on the theatre reform of Carlo Goldoni and on the theatre of Luigi Pirandello.

Prerequisites: Italian 26.310, 26.320, or permission of the Department.

Not offered 1975-76.

Italian 26.420

Contemporary Italian Novel

A study of selected Italian contemporary novels.

Prerequisite: Italian 26.320, or permission of the Department.

Not offered 1975-76.

Italian 26.430

Twentieth Century Italian Poetry

A study of the most representative contemporary Italian poets.

Prerequisite: Italian 26.320, or permission of the Department.

Not offered 1975-76.

Italian 26.491

Special Studies II

A reading or research course for selected students who wish to investigate a particular literary genre or author in greater depth than they are covered in other courses. Available to Fourth year students only.

Prerequisite: Permission of the Honours adviser.

Italian 26.498

Honours Research Essay

Open to candidates for Combined Honours programs in Italian in their Fourth year. The subject for research will be chosen in consultation with the Department and a supervisor will be assigned.

Prerequisite: Permission of the Department.

School of Journalism

For details of program offered by the School see pp. 62-64.

Courses Offered

Journalism 28.100 and 28.110

Introduction to Human Communication

The act of human communication: how it takes place, in what settings and to what effect. A broad survey course covering such aspects as the verbal and nonverbal ways in which man communicates; general semantics; sense perception; communication in the arts; telecommunication systems; information theory; mass communication; and the role of the mass media in social change. Discussion groups are workshops for projects and for practical exercises in group behaviour.

Journalism 28.100: For Honours students enrolled in the School of Journalism only and the School of Architecture. Journalism 28.110: For non-majors. Registration for 1975-76 will be limited to 400 students.

Day division: Lectures and discussion groups four hours a week.

Roger Bird, Tom McPhail, Mel Thistle

Journalism 28.101★

Journalism Workshop

A course designed to provide Journalism students with fundamental skills in typing and note-taking. Students normally take Forkner shorthand during one term and typing during the other, unless they are already qualified in one or both skills. The qualification standard is 60 words per minute for shorthand or speed writing and 25 words per minute in typing. The course is marked on a pass/fail basis; students are passed as soon as they have demonstrated proficiency in both skills. Students are not permitted to withdraw from this course except with Departmental approval, and must have passed the course before entering Journalism 28.320.

Prerequisite: For Journalism Honours students only.

Day and Evening divisions: Workshops four hours a week.

Journalism 28.200

Problems of the Mass Media

An historical and contemporary examination of mass media. Problems including ownership structure, monopoly, government control, freedom and secrecy, responsibility and ethics, public opinion, propaganda, copyright, censorship in war and peace.

Prerequisite: Journalism 28.100.

Day division: Three hours a week.

Summer 1975, Day division: Lectures ten hours a week.

Peter Johansen, W.H. Kesterton

Journalism 28.201

The Mass Media in Modern Society

An examination in some detail of the historical development and current function of the major mass media, with a view to relating developments to the larger social structure, thus giving an indication of the importance of the media in shaping modern society. The Second term will be devoted to a detailed examination of the mass media in Canadian society.

Prerequisite: For non-Majors only.

Evening division: Lectures and seminars three hours a week.

Peter Johansen

Journalism 28.220

Fundamentals of Reporting

The nature of news values; how to recognize and collect news; how to analyse, organize and report it. Interviewing and news gathering. This is mainly a practical course, based on assignments in reporting and writing for newspapers, radio and television.

Prerequisite: For Honours Journalism students who have completed 28.101★ and transfer students.

Texts: Wilson, *Style Guide*; Topolski, *TV is Pictures*.

Day division: Lectures and practical exercises seven hours a week. Enrolment during the winter session is limited to Journalism Honours students.

Summer 1975, Evening division: Lectures and assignments averaging six hours a week.

Carman Cumming, T.J. Scanlon, Joan Topolski, Phyllis Wilson

Journalism 28.300

The Modern Environment

A seminar course for Journalism students in which a number of texts drawn from the social sciences, literature, journalism and philosophy are considered for their contributions to an understanding of contemporary society and the issues which provide the background to much of contemporary journalism.

Prerequisites: Journalism 28.100 and 28.200, or permission of the School.

Day division: Three hours a week.

Roger Bird, Patrick MacFadden

Journalism 28.301

Media Research

A systematic analysis of selected substantive and methodological traditions in the field of the mass media and related communications research. Students will concurrently undertake an original research project and will be encouraged to focus this research on the Canadian scene.

Prerequisite: Third year standing or higher, Journalism 28.200 or 28.201.

Day division: Three hours a week.

Journalism 28.310

Advanced Studies of the Mass Media

The essential core of this course consists of a detailed examination of the literature of communications theory, particularly as it relates to the role of the mass media in the growth and evolution of mass society. Students will be given the opportunity to read in depth some of the more important studies dealing with the mass media, collective behaviour, and other forms of mass communication. The emphasis will be on the various ways in which communications have been examined by a variety of research methods, and the conflicting theories which have resulted.

Prerequisite: One of Journalism 28.100, 28.110, 28.200, 28.201 or permission of the instructor.

Day division: Three hours a week.

Tom McPhail

Journalism 28.320

Interpretative Reporting and Editing

The reporting of public affairs for newspapers, radio and television. The background story. Interpretation. The role of the editor. The editor and the law. Management problems and policies.

Prerequisite: Journalism 28.101★ and 28.220.

Day division: Day-long seminar once a week.

George Frajkor, Murray Goldblatt, T.J. Scanlon, Marvin Schiff

Journalism 28.321★

Career Seminars

An opportunity for the student to specialize by doing work in such areas as television, radio, magazines, public relations, creative writing, editorial writing, freelancing, the film, or reporting in the French language. Certain of these specialties may not be offered in a given year.

Prerequisite: For Third year and one-year program Journalism students only.

Day division: Annually, as required; two hours alternate weeks all year.

Elspeth Chisholm, Cameron Graham, Ted Grant, Kenneth Pagniez, Brian Taylor

Journalism 28.333

The Motion Picture: The Development of a Modern Medium

An examination of the motion picture as an historical document, which reflects social, intellectual and cultural development of the twentieth century. Although the emphasis will be on films, students will be required to read widely in other sources.

Prerequisite: For Third and Fourth year students, or by special permission of the instructor.

Day division: Classroom discussion and showings four hours a week.

Robert Blackwood, Patrick MacFadden

Journalism 28.351★

Communications Law I

This course is concerned with restrictions on freedom of expression in Canada. Specific topics for examination will include: freedom of speech and press; privileged statements; pre-trial publicity; copyright; sedition; libel and slander; defamation; contempt of court; obscenity; censorship. (Also offered in the Department of Law as Law 51.351★.)

Prerequisite: Permission of the School.

Day division, First term: Lectures and discussions three hours a week.

W.H. Kesterton

Journalism 28.352★

Communications Law II

The law as it affects the Canadian broadcasting and communications industry. The primary focus of the course will be on the operations of the Canadian Radio and Television Commission. Specific topics for examination may include: administrative formulation of policy; multiple, monopoly and foreign ownership; control of program content (violence, obscenity, 'good taste', food and drug commercials, liquor advertising, indirect censorship); controlling program quality; the provision of a right of access to the media; cablevision licensing and control; alternative sanctions. (Also offered in the Department of Law as Law 51.352★.)

Prerequisite: Permission of the School.

Day division, Second term: Lectures and discussion three hours a week.

Journalism 28.400

Basic Issues

A seminar on leading news topics of the day. Stress will be placed upon intensive investigation and consideration of perennial problems as well as emerging public issues likely to confront the professional journalist.

Prerequisite: Journalism 28.300.

Not offered 1975-76.

Journalism 28.421

Specialized Reporting

An opportunity for students to specialize by acquiring background and undertaking assignments in all media in various specialized areas, such as science and technology, business and finance, sports, the arts, international affairs, Canadian politics and government, social welfare. Certain of these specialties may not be offered in a given year.

Prerequisite: Journalism 28.320.

Day division: Three hours a week.

Patrick MacFadden, Marvin Schiff, Tom Sloan, David van Praagh

Journalism 28.422★

Communication Research I

A survey of the current literature on mass communication theory and research, including considerations of media use and effects, survey and interview-

ing techniques and public opinion polling and interpretation.

Prerequisite: For students in the one-year program.

Day division: Three hours a week.

Jay Weston

Journalism 28.423 ★

Quantitative Methods in Media Research

A basic course in quantitative techniques stressing the conceptual understanding of processes of scientific inquiry into the mass media. The major elements include probability and inference, accuracy and precision, the nature and use of statistics, measurement, hypothesis testing and research design.

Prerequisite: For students in the one-year program.

Day division: Three hours a week.

Jay Weston

Journalism 28.434 ★

Media and Society I

An analysis of communications theory and the development of communications media as influential institutions in western society, with special attention to landmark events in Canada, Britain and the United States. An emphasis will be placed upon current social science research studies as they relate to journalism and communication.

Prerequisite: For students in the one-year program.

Journalism 28.435 ★

Media and Society II

An examination of the role and structure of the news media in Canada with special attention to problems of ownership, monopoly, government control, content, censorship and social and political responsibility.

Prerequisite: For students in the one-year program.

Journalism 28.440 ★

Media Practices

A seminar covering techniques of reporting with special focus on news judgment, ethics, interviewing, newsroom organization; the examination of the news channels in such public institutions as the courts, municipal government, public agencies and Parliament.

Prerequisite: For students in the one-year program.

Journalism 28.441 ★

Reporting Laboratory I

A laboratory course in basic reporting in various media.

Prerequisite: For students in the one-year program.

Journalism 28.442 ★

Reporting Laboratory II

A laboratory course in advanced reporting in various media.

Prerequisite: For students in the one-year program.

Journalism 28.444 ★

Interpretative Reporting

An examination of research and writing techniques used in feature and background reporting. Students will research to professional standards the material needed for a series of articles on a subject of their own choosing, normally related to public affairs in the Ottawa area. While the emphasis will be on a print series students may, with permission, work in other media.

Prerequisite: For students in the one-year program.

Journalism 28.445 ★

Editorial Techniques

Combined seminars and workshops in the problems of copy handling, film handling, headline writing, writing to film, news judgment, bias and balance and general semantics. A theoretical and practical look at the law as it relates directly to media practices with particular attention to laws of contempt, slander, libel and invasion of privacy.

Prerequisite: For students in the one-year program.

Journalism 28.461 ★

Perspective on Modern Society

A seminar course examining texts from the social sciences, philosophy, literature and journalism for the contribution they make to an understanding of issues facing modern industrial society.

Prerequisite: For students in the one-year program.

Journalism 28.462 ★

Public Issues in Canada

A seminar course examining literature and other sources in an attempt to understand continuing and emerging political, social and economic problems in contemporary Canada.

Prerequisite: For students in the one-year program.

Journalism 28.490

Honours Tutorial

The First term will be devoted to an analysis of some of the major achievements of contemporary journalism. Students will be expected to work individually and in groups in presenting research papers. Students will also acquire background and experience in the managerial aspects of print and broadcast journalism. The Second term will be devoted to problems in newspaper, radio, film and television journalism, and in communication research. Students will work in small groups in engaging these problems.

Prerequisite: Journalism 28.320.

Not offered 1975-76.

Journalism 28.498

Honours Research

Students in this course will have to carry out directed research and prepare a project under the supervision of one faculty member. The deadline for completion of the honours research project is May 1. Extensions may be approved at the discretion of the supervisor and

research co-ordinator.

Prerequisite: For Honours students only.*

Day division.

W.H. Kesterton

* Students should refer to general Faculty of Arts regulations regarding submission of Honours Essays, p. 59.

Journalism 28.499

Research Credit

Students will carry out directed research and prepare a project under the supervision of one faculty member. The deadline for completion of the honours research project is May 1. Extensions may be approved at the discretion of the supervisor and research co-ordinator.

Prerequisite: For students in the one-year program.

Day division.

Officers of Instruction

Chairman

J.A. MacKenzie

Supervisor of Honours

J.A. MacKenzie

Supervisor of Majors

R.D. Abbott

Professor

P.J. Fitzgerald

Associate Professors

R.D. Abbott

D. Fraser

J. George Neuspiel

Assistant Professors

J. Barnes

R.L. Campbell

D.W. Elliott

J.A. MacKenzie

K.G. McShane

C.N. Sargent

D. Wayand

Adjunct Professors

P.L. Waller

M. Wershof

Sessional Lecturers

K. Binks

M.-J. Binks-Rice

P.Y. Delage

R.L. Doering

T. Elton

T.D. Finn

W.C.V. Johnson

C.C. Johnston

E.A. Johnston

L. Kos-Rabcewicz-Zubkowski

R.S. McLellan

H.A. Newman

M. Phelan

E. Ratushny

L.A. Roine

M. Selucka

H.W. Silverman

General Information

Courses in this Department are intended to promote an awareness of the place of rules respecting human conduct in the political, social and economic environment. Their purpose is *not* to qualify anyone to practise

law or to give counsel in legal matters. Many Law courses were originally established to meet the need of students in other programs for a knowledge of the legal aspects of their own disciplines. It is a continuing desire of the Department that students bring to bear on legal problems the insights of other disciplines and it is the Department's hope that students will in turn benefit from a knowledge of the techniques of legal analysis and of the legal principles relating to their own disciplines.

Students intending to proceed to a law school should note that at present no credit is given towards a law degree for law courses taken at Carleton. However, prospective law students may find Carleton law courses valuable introductions to professional studies. Members of the Department are available to advise prospective law students as to their choice of law school and the selection of courses at this University.

Combined Major Program

Students may undertake the study of law within the Faculty of Arts in a Combined Major program in conjunction with another discipline.

The Combined Major program is governed by the following regulations:

1. All Combined Major programs must be approved by the Department after consultation with the Supervisor of Majors or some other member of the Department specifically designated for that purpose.
2. Combined Major students will complete at least four, but not more than seven full courses or their equivalent in Law according to the following prescribed pattern:
 - (a) Law 51.100 (01.120), or the combination of 51.101★ with 51.102★; and
 - (b) Law 51.200; and
 - (c) one Law course at the 300 level or higher; and
 - (d) at least one further Law course which may not include Law 51.201.
3. Students whose other discipline in a Combined Major program is not a social science, that is to say a discipline included within Division II of the Faculty of Arts, must take at least one introductory or survey course in a social science as may be approved by the Department from time to time.
4. Students seeking to enter or remain in the Combined Major program must have obtained a grade of C- or better in Law 51.100, or its prescribed equivalents.
5. Students in the Combined Major program must satisfy the general University regulations governing Arts Major programs.

6. All transitional arrangements governing entry into a Combined Major program and published in previous issues of the calendar are revoked.

Note: The attention of Combined Major students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Majors and that this approval must not be presumed. Failure to heed the departmental Supervisor's advice may result in the student's ineligibility for certain advanced and graduate courses and programs.

Combined Honours Program

Students may undertake the study of Law within the Faculty of Arts in a Combined Honours program in conjunction with another discipline.

The Combined Honours program is governed by the following regulations:

1. All Combined Honours programs must be approved by the Department after consultation with the Supervisor of Honours or some other member of the Department specifically designated for that purpose.

2. Combined Honours students must complete a minimum of twenty-five courses from Junior Matriculation or a minimum of twenty courses from Senior Matriculation.

3. Combined Honours students will complete at least six but not more than nine full courses, or their equivalent, in Law, according to the following prescribed pattern:

(a) Law 51.100 (01.120), or the combination of 51.101★ with 51.102★; and

(b) Law 51.200; and

(c) at least one Law course at the 300 level or higher; and

(d) at least one other Law course at the 400 level; and

(e) an Honours essay in Law (51.498), or an Honours essay in the other combined discipline. (When the Honours essay is in the other discipline, students may be required to take Law 51.490, Directed Studies in Law.); and

(f) at least one other Law course which may not include Law 51.201.

4. Students whose other discipline in a Combined Honours program is not a social science, that is to say a discipline included within Division II of the Faculty of Arts, must take at least one introductory or survey course in a social science as may be approved by the Department from time to time.

5. Students seeking to enter or remain in the Combined

Honours program must have obtained a grade of C- or better in Law 51.100, or its prescribed equivalents.

6. Students in a Combined Honours program must have obtained a grade of B- or better in their Honours Essay in Law 51.498. Similarly a grade of B- or better is required in Directed Studies in Law 51.490, whenever this course is offered in substitution of the Honours Essay in Law, in accordance with the provisions of regulations 3(e) above.

7. Students in a Combined Honours program must satisfy the general University regulations for Arts Honours programs.

Note: The attention of Combined Honours students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Honours and that this approval must not be presumed. Failure to heed the departmental Supervisor's advice may result in the student's ineligibility for certain advanced and graduate courses and programs.

Prerequisites

The attention of students is drawn to the fact that many law courses have designated prerequisites. In some instances "permission of the Department" is an alternative to the specified prerequisite. It must not be presumed that such permission will be granted automatically; and, it may be granted subject to certain conditions, including the fulfillment of preliminary reading requirements or the submission of some written work.

Courses Offered

Law 51.100

Introduction to Legal Studies

An historical introduction to the study of law and to the legal system; the background to the British and Canadian constitutions, general concepts of constitutional and administrative law; the development of public and private law from the Anglo-Saxon period to the present; the legal institutions of Canada and the place of law and of the courts in the community; legal interpretation and the use of legal precedents.

Day and Evening divisions: Lectures three hours a week, group workshops one hour a week.

K.G. McShane

Note: Law 51.100 (01.120), and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.101★

Historical Introduction to Legal Studies

An historical introduction to the study of law and to the legal system; the background of the British and Canadian constitutions, general concepts of constitutional and administrative law. Development of public and private law from the Anglo-Saxon period to the present; the rule of law.

Offered at St. Patrick's College from January 28 to April 23, and in the 1975 Summer session. Lectures and group workshops, four hours a week.

Note: Law 51.100 (01.120), and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.102★

Introduction to the Canadian Legal System

The Canadian legal system with emphasis on the organization and jurisdiction of the Courts. A study of the doctrine of precedent with case studies drawn from law of torts. Legal interpretation of statutes. Canadian criminal process and civil procedures. Public law and problem of subordinate legislation. The place of law and of the Courts in the community.

Prerequisite: Law 51.101★

Day division, Second term: Lectures three hours a week, group workshops one hour a week.

Summer 1975, Evening division: Lectures and group workshops four hours a week.

Note: Law 51.100 (01.120), and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.200

The Legal Process

A methodological study of the legal process in general, with particular reference to its operation in the Canadian legal system; the nature of legal rules, principles, standards and concepts; the advantages and disadvantages of the legal process in comparison with other processes for the solution of conflicts. This course is designed for students who intend to select Law as one of the Combined Major or Honours subjects.

Prerequisite: Law 51.100, or permission of the Department.

Day and Evening divisions: Lectures and discussion three hours a week.

J. Barnes, P.J. Fitzgerald, D. Fraser

Note: Only one of Law 51.200 or 51.201 may be taken for credit.

Law 51.201

The Elements of Law

A topical survey of the Canadian legal system including its concepts, institutions, processes and functions. As this course is particularly designed for teachers of law in high schools, the methodological problems will be

emphasized. This course is designed for those *not* intending to proceed to a Combined Major or Honours degree in Law.

Prerequisite: Permission of the Department.

Evening division: Lectures and discussions three hours a week.

Note: Law 51.201 may not be taken for credit towards a Combined Major or Honours degree in Law.

Law 51.205

Introduction to Public Law

A basic study, with special reference to Canadian institutions, of the law governing the relationship between the state and the individual, and the workings of the different organs of the state; the basic nature of constitutions and constitutional law; the concept of sovereignty, the problem of the legally unlimited sovereign and of the divided sovereign; the role of the judiciary in constitution-making; the role and nature of constitutional conventions; limitations on a state's legislative power and authority. Introduction to the principles of administrative law and international law. This course should be of particular interest to students intending to pursue the study of Public Administration and Canadian government.

Prerequisite: An introductory course in Political Science or Law 51.100 or its equivalents, or permission of the Department.

Day and Evening divisions: Lectures and discussions three hours a week.

K. Binks, D. Elliott

Law 51.210

Theory of Law and Politics

A study of various theories and institutions concerning the interrelated fields of law and politics. Several large topics will be studied in the light of treatment by prominent thinkers of western civilization. Topics such as the following will be covered: justice, natural law, state absolutism and positive law, anthropological and historical theories of law and society, civil obedience and the right to revolt. (Also listed as Political Science 01.265.)

Prerequisite: An introductory course in either Law or Political Science, or permission of the instructor.

Evening division: Lectures and discussions three hours a week.

Offered in 1975-76 at St. Patrick's College.

D. Wayand

Law 51.220

Commercial Law I

An examination of the principles of contract including formation, enforceability, capacity, privity, discharge and remedies for breach; the formation of the contract of sale and the duties and remedies of both parties under the Ontario Sale of Goods Act; the application of the Personal Property Security Act; special contracts including those of employment, tenancy and bailment.

Day and Evening divisions: Lectures and discussions

three hours a week.
L. Roine, N. Sargent

Law 51.221

Consumer Law

The need for consumer protection in the provision of both goods and services; the traditional legal protections afforded by statute and common law; the legislative response to consumer pressures for greater control of manufacturing, wholesaling, retailing and the provision of services; further projected reforms in Canada and overseas; price maintenance and monopoly power.

Prerequisite: Law 51.100 or its equivalents, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

Law 51.234

Law and Antisocial Behaviour

Canadian criminal process; the nature and purpose of criminal law; the criminal act as distinguished from civil wrong; the origin and development of contemporary principles and procedures, the various categories of criminal conduct. The role of enforcement agencies and of the courts in the administration of criminal law. Methods of criminal correction. Introduction to the study of the relationship between criminal activity and deviant behaviour.

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.201 or 51.205, or permission of the Department.

Day and Evening divisions: Lectures and discussions three hours a week.

T. Elton, P.J. Fitzgerald

Law 51.284

Law of the Family

Law and the family as a unit; engagement, marriage and dissolution of marriage; rights and duties of spouses and parents. The law and the child; care, custody, access, guardianship, adoption, illegitimacy. The role of courts and of social welfare agencies.

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.201 or 51.205, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

M.-J. Binks-Rice

Law 51.301★

Women and the Legal Process

This course will examine the manner in which the legal process has affected the status of women. Areas of concentration within the Canadian context will include the criminal law, citizenship and immigration, education, employment, and welfare and social services.

Prerequisite: One of Law 51.100 or its equivalents, 51.200 or 51.201, or permission of the Department.

Summer 1975, Evening division: Lectures and discussions four hours a week. July 3 to August 12.

Law 51.310

Jurisprudence and Legal Theory

Theories of the nature and the philosophical basis of law. Classical theories; natural law; the development of positivism; utilitarianism; the analytical theory and the pure theory of law; the historical and the sociological schools of jurisprudence, modern legal realism. Law and ethics, law and morality. (Also offered in the Department of Philosophy as Philosophy 32.350.)

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.201, 51.205 or 51.210, or permission of the Department.

Day division: Lectures and discussions three hours a week.

J. Barnes, R. Marlin

Law 51.320

Commercial Law II

An examination of the incidence of the contract of employment and the principles of agency; the nature, use and enforcement of negotiable instruments; the nature and application of the contract of insurance and an introduction to copyright trade marks and patents.

Prerequisite: Law 51.220.

Day division: Lectures and discussions three hours a week.

R.L. Campbell

Law 51.321

Company Law

The law relating to corporations and partnerships in Canada; the historical development of the corporate device; rights and duties of officers, directors and shareholders of the corporation; legal aspects of corporate finance; comparative aspects of corporation law in the United Kingdom, the United States and Europe.

Prerequisite: Law 51.220, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

R.L. Campbell

Law 51.323

The Legal Nature of Property

The nature and history, creation and termination of interests in different types of property, such as land, goods, money, negotiable instruments, proprietary rights in modern social security and welfare schemes, as well as various forms of intellectual property. Legal and equitable techniques for the transfer of property interests. Public intervention in property relationships.

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.220 or 51.221, or permission of the Department.

Day or Evening division: Lectures and discussions three hours a week.

Law 51.324

Tax Law and Policy

An introduction to federal income taxation, both personal and corporate, and a review of the Canadian tax system generally with particular reference to the development, implementation and enforcement of tax policy.

Prerequisite: One of Law 51.200, 51.201, 51.205, 51.220, 51.320, or an introductory course in Economics, or permission of the Department.

Day and Evening divisions: Lectures and discussions three hours a week.

Law 51.333

Torts

The protection of personal interests in physical and proprietary security from interference. The manner in which the legislatures and the courts develop and broaden the law to meet the needs of a changing society. Compensation and loss distribution. The principal matters studied are: intentional torts, negligence, strict liability, defamation and nuisance.

Prerequisites: Law 51.100, or its equivalents, 51.200, or permission of the Department.

Day division: Lectures and discussions three hours a week.

D. Wayand

Law 51.351★

Communications Law I

This course is concerned with restrictions on freedom of expression in Canada. Specific topics for examination will include: freedom of speech and press; privileged statements; pretrial publicity; copyright; sedition; libel and slander; defamation; contempt of court; obscenity; censorship. (Also offered as Journalism 28.351★.)

Prerequisite: Permission of the Department.

Day division, First term: Lectures and discussions three hours a week.

Law 51.352★

Communications Law II

The law as it affects the Canadian broadcasting and communications industry. The primary focus of the course will be on the operations of the Canadian Radio and Television Commission. Specific topics for examination may include: administrative formulation of policy; multiple, monopoly and foreign ownership; control of program content (violence, obscenity, 'good taste', food and drug commercials, liquor advertising, indirect censorship); controlling program quality; the provision of a right of access to the media; cablevision licensing and control; alternative sanctions. (Also offered as Journalism 28.352★.)

Prerequisite: Permission of the Department.

Evening division, Second term: Lectures and discussions three hours a week.

C.C. Johnston

Law 51.353

Civil Liberties and Human Rights

This course examines legal conflicts which raise issues affecting basic freedoms of individuals or groups in Canadian society. The recurrent theme is the appropriate balance to strike between the rights of the individual and the rights of that collectivity of individuals called society. Specific topics to be examined include: the concept of liberty; law and conscience; civil disobedience; crimes without victims; civil liberties and constitutional guarantees; the Canadian Bill of Rights; racial discrimination and human rights legislation; hate literature and its control; legal problems of minority groups; poverty and law.

Prerequisite: One of Law 51.200 or 51.205, or permission of the Department.

Day division: Lectures and discussions three hours a week.

K.G. McShane

Law 51.374

Local Government Law

The legal framework of local and regional governments; the distribution of functions between levels of local government and problems of the relationship between local government bodies and provincial and federal authorities. The principal emphasis of the course in 1975-76 will be placed on planning law and land use, regionalism and local government reform. (Also offered as Geography 45.374.)

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.201 or 51.205, or permission of the Department.

Evening division: Lectures and discussion three hours a week.

Law 51.380

Law of Environmental Quality

The legal process relating to resource conservation and to the control and abatement of pollution in water, air and land. The common law and statutory remedies through private actions in the ordinary courts; the role of public authorities through coercive techniques such as criminal sanctions, licensing of resource use, licensing of pollution, and direct remedial actions; non-coercive techniques such as subsidies, tax incentives, public works, research and persuasion; land use control techniques in protecting environmental quality; constitutional division of legislative competence concerning these matters; administrative problems of achieving interjurisdictional cooperation in activities by public authorities.

Prerequisite: One of Law 51.200, 51.201 or 51.205, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

R.D. Abbott

Law 51.386★

The Civilist Tradition

A comparative study of selected topics of several major European legal systems which are based on Roman Law. The development of Roman Law up to and including Justinian's *corpus juris civilis*. The reception of Roman Law by various European continental legal systems. Comparative analysis of selected articles of the French, Austrian and German codes.

Prerequisite: One of Law 51.100, 51.200, 51.201, 51.205, or 51.210, or permission of the Department.

Day division, First term: Lectures and discussions three hours a week.

D. Wayand

Law 51.387★

Quebec Law

A comparative examination of the legal system of Quebec. The weight and importance of the various sources of law in Quebec and how the law is made. Study of the Quebec Civil Code and of the force of the Code provisions. Division of the Code and influence of Roman Law. Techniques of interpretation of the Code. Detailed study of selected Articles of the Code. Interpretation and application of the Code in Federal Appeal Courts.

Prerequisite: Law 51.386★, or permission of the Department.

Day division, Second term: Lectures and discussions three hours a week.

D. Wayand

Law 51.420

International Economic Law I

The legal aspects of international trade, with particular emphasis on the representation of Canadian economic interests abroad. A study of the laws governing selected global and/or regional economic organizations. In 1975-76 this half course will concentrate on an examination of the principal legal rules governing commercial relations with the Soviet Union and various European socialist countries (COMECON). (This course is a recommended option in the program of the Institute of Soviet and East European Studies.)

Prerequisite: Permission of the Department.

Day or Evening division, First term: Seminar three hours a week.

L. Kos-Rabcewicz-Zubkowski

Law 51.421★

International Economic Law II

The legal aspects of international trade, with particular emphasis on the representation of Canadian economic interests abroad. An advanced study of the detailed rules governing selected global and/or regional economic organizations. In 1975-76 this half course will be devoted to a more detailed study of the rules governing economic relations with selected COMECON countries. (This course is a recommended option in the program of the Institute of Soviet and East European Studies.)

Prerequisite: Law 51.420★, or permission of the Department.

ment.

Day or Evening division, Second term: Seminar three hours a week.

L. Kos-Rabcewicz-Zubkowski

Law 51.441

Labour Law

A study of the ordering role of law in industrial relations processes. The study considers the effect of law on the relationship between employer, employer association, employee, union, and the public. The main process considered is collective bargaining, and sub-processes studied are the recognition of the bargaining agent, bargaining for the collective agreement, and administration of the agreement. The principal ordering role of law that will be considered is its attempt to resolve industrial conflict, which includes formalisation of disputes in adversary modes, as well as methods of resolution. The ordering role is studied in its social as well as its legal context, by the use of non-decisional materials as well as cases.

Prerequisite: An introductory course in Economics, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

D. Fraser

Law 51.445★

Staff Relations in the Public Service

A study of the collective bargaining process in the public sector with particular emphasis on the Federal, Ontario and Quebec Public Services. The problems of adapting accepted collective bargaining procedures and techniques to the public service environment; the right to strike in the public service and essential industries; grievance procedures; the general problem of labour-management relationships in the public sector and the consequences thereof for efficiency and loyalty.

Prerequisite: An introductory course in Economics or Law, or permission of the Department.

Evening division, Second term: Seminars three hours a week.

D. Fraser

Law 51.450

Canadian Constitutional Law

A detailed study of the basic principles of the Canadian Constitution. The Rule of Law, the nature and limits of executive, legislative, and judicial power in Canada as interpreted by the Courts. The distribution of powers under the Canadian Constitution. An investigation of contemporary legal problems of federalism.

(Note: Students primarily interested in the political aspects of the Government of Canada may wish to register in Political Science 47.400.)

Prerequisite: One of Law 51.100 or its equivalents, 51.200, 51.201 or 51.205, or a Political Science course in Canadian government, or permission of the Department.

Day or Evening division: Lectures and discussions three hours a week.

J.G. Neuspiel

Law 51.453

Law and Native Peoples of Canada

A study of the legal situation of native peoples in Canada. The seminar will deal with the treaty and aboriginal claims of Canada's native population, the modern legal and political debate about special status for Indian people and the legal implications of the reserve system. The special impact of general Canadian law (such as criminal law and family law) on native communities will be considered. Comparative references to native policy in the United States, Australia and New Zealand will supplement the Canadian material.

Prerequisite: Law 51.353, or permission of the Department.

Summer 1975, Evening division: Lectures and discussions four hours a week.

Law 51.455

Administrative Law I

An examination of the processes essential to translate public policy into effective legislation, and of the basic legal problems faced by managers in either implementing or being responsive to legislated policy. Topics include articulation of government policy in statutory form, sanctions, the choice of forum for decision-making and interpretation, discretionary justice, and judicial control of public authorities.

Prerequisite: Law 51.200 or 51.205, or permission of the Department.

Evening division: Lectures and discussions three hours a week.

D.W. Elliott

Law 51.463

Public International Law

An examination of the role of law in contemporary international relations. Nature, history and sources of international law. International personality of states; the position of the individual; creation and effect of international obligations; importance and functions of law in the settlement of international disputes.

Prerequisite: One of Law 51.100, or its equivalents, 51.200, or 51.205, or permission of the Department.

Evening division: Seminars three hours a week.

J.G. Neuspiel

Law 51.488

Socialist Legal Systems

A comparative approach to selected legal problems of the Soviet Union and a number of other socialist states. Marxist concepts of state and law, the Leninist, Stalinist and contemporary interpretations of law and their practical applications.

Prerequisites: One of Law 51.100 or its equivalents, 51.200, 51.205, 51.386★, 51.450, or a course in east

European government, or in the history of eastern Europe.

Day division: Lectures and discussions three hours a week.

M. Selucka

Law 51.490

Directed Studies

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to Third and Fourth year students only.

Prerequisite: Permission of the Department.

Law 51.491

Tutorial in Law

Members of the Department are prepared to give reading courses in selected fields. In 1975-76 these fields may include town planning law; the law of armed conflict, neutrality and peacekeeping; history of international law; the law of treaties; law of equity and trusts; criminal law.

Law 51.498

Honours Essay

Day division: Tutorial hours arranged.

Graduate Courses Open to Undergraduate Students

Law

51.555 Administrative Law II

51.567★ Advanced International Legal Problems

Courses Offered at St. Patrick's College

Law

51.210 Theory of Law and Politics

Courses Planned for Summer School and Evening Division, 1975-79

As of publication of this Calendar, the Department hopes to be able to offer the following courses during the Summer sessions and Evening divisions for the next four years. Changes may be made, however, and interested persons are urged to consult the Department and to refer to future issues of the Calendar as they are published.

Summer 1975

51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.301★, 51.320, 51.453.

Evening Division 1975-76

51.100, 51.101★, 51.200, 51.205, 51.220, 51.221, 51.234, 51.284, 51.321, 51.324, 51.374, 51.380, 51.441, 51.445★, 51.450, 51.453, 51.455, 51.463.

Summer 1976

51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.284, 51.324, 51.333, 51.441.

Evening Division 1976-77

51.100, 51.101★, 51.200, 51.205, 51.220, 51.221, 51.234,
51.284, 51.320, 51.321, 51.324, 51.374, 51.380, 51.441,
51.445★, 51.453, 51.455, 51.463.

Summer 1977

51.101★, 51.102★, 51.200, 51.205, 51.220,
51.301★, 51.353, 51.445★, 51.555.

Evening Division 1977-78

51.100, 51.101★, 51.200, 51.205, 51.220, 51.221, 51.234,
51.284, 51.310, 51.321, 51.324, 51.374, 51.380, 51.441,
51.445★, 51.450, 51.453, 51.455, 51.463.

Summer 1978

51.101★, 51.102★, 51.200, 51.205, 51.220,
51.234, 51.284, 51.324, 51.450.

Evening Division 1978-79

51.100, 51.101★, 51.200, 51.205, 51.220, 51.221, 51.234,
51.284, 51.321, 51.324, 51.374, 51.380, 51.441,
51.445★, 51.450, 51.453, 51.455.

Officers of Instruction

Chairman

William Cowan

Professor

William Cowan

Associate Professors

Jean-Pierre Paillet

Ian Pringle

Assistant Professors

Michael Dobrovolsky

C. Stanley Jones

Elaine Pressman

General Information

The Linguistics program offers courses leading to Major and Honours degrees in Linguistics. The aim of these courses is not to teach particular languages, but to offer insight into what all languages have in common, in what ways they differ, and how they change, and thus to promote understanding of an attribute which is uniquely human: the ability to communicate by means of language.

Beyond the basic introductory and theoretical courses at the 100 and 200 level, courses fall into five areas: theoretical linguistics, historical linguistics, applied linguistics, psycholinguistics and speech science, and sociolinguistics. Detailed information about the content of courses taught in 1975-76 can be obtained from the Department's *Handbook*, published in the summer, which is available on request.

Major Programs

Every student who elects Linguistics as a Major subject will plan his program in consultation with a member of the Department. To graduate with a Major in Linguistics, students must satisfy the following requirements:

1. Proficiency in a language other than English.

Proficiency is defined as having a command of the language at least equal to that of a student who has successfully completed a 100-level course in the language. Students who claim proficiency without having passed such a course will have to satisfy the Department that they do in fact have an adequate command of the language.

2. The following courses in Linguistics are required:

29.100 Introduction to Linguistics

29.200 Syntactic Analysis

29.201 ★ Phonetics

29.202 ★ Phonology

One 300-level course-credit (other than List B courses)

3. Students must also present three other courses acceptable to the Department, including at least one course-credit from List A; at least one half course from List B; and either another course-credit from List A, or another half course or full course from List B, or another course-credit in Linguistics.

Combined Majors are possible with Linguistics and Classics, English, French, German, Italian, Philosophy, Psychology, Russian, Sociology-Anthropology and Spanish. Normally a student taking a Combined Major in Linguistics will be required to take four course-credits in Linguistics, including 29.100, 29.200, 29.201 ★, 29.202 ★, and one 300-level course-credit (other than List B courses). This requirement may be modified to suit special needs. All students taking a Combined Major will arrange their programs in close consultation with a member of the Department.

Honours Programs

Students who plan to take an Honours B.A. in Linguistics must plan their programs in consultation with a member of the Department. To graduate with an Honours degree in Linguistics, students must satisfy the following requirements:

1. Proficiency in a modern language and in a classical or extinct language. Proficiency in a modern language is defined above in the description of the Major programs. The second language may be either an earlier form of the modern language of proficiency (e.g. French 20.305 for Old French, German 22.430 for Old and Middle High German, Old Church Slavonic for Russian, Spanish 38.415 for Old Spanish), a classical language (Latin, Greek, or, for Sanskrit, Religion 34.017 or 34.217), Old English (English 18.212) or Old Norse (English 18.418).

2. The following courses in Linguistics are required:

29.100 Introduction to Linguistics

29.200 Syntactic Analysis

29.201 ★ Phonetics

29.202 ★ Phonology

Two 300-level course-credits (other than List B courses)

Two 400-level course-credits in Linguistics, to include Linguistics 29.409 ★ Seminar in Current Issues in Linguistics

3. Students must also present three other courses acceptable to the Department including at least one

course-credit from List A; at least one half course from List B; and either another course-credit from List A or another half course or full course from List B, or another course-credit in Linguistics.

Combined Honours Programs

Combined Honours are possible with Linguistics and Anthropology, Classics, English, French, German, Philosophy, Psychology, Russian and Spanish. Normally a student taking Combined Honours in Linguistics will be required to take at least five course-credits in Linguistics, including 29.100, 29.200, 29.201★, 29.202★, one 300-level course-credit (other than List B courses), and one and a half 400-level course-credits.

In addition, a student taking Combined Honours in Linguistics will be expected to demonstrate proficiency in one Indo-European language other than his native language, and to take at least one half course from List B. These requirements may be modified to suit special needs. All students enrolled in Combined Honours programs are required to arrange their programs in close consultation with a member of the Department.

Combined Honours in Russian and Linguistics, Translation option

For details of this program, which offers specialized training in Russian-English translation, see the description in the entry for the Russian Department.

Certificate in the Teaching of English as a Second Language

The program leading to the Certificate in the Teaching of English as a Second Language consists of five undergraduate course credits as follows:

Linguistics

29.100 Introduction to Linguistics

29.201★ Phonetics

29.220 Teaching English as a Second Language

29.222★ Practicum in Teaching English as a Second Language

29.285 Structures of English

One further approved course credit

Courses taken in this program are creditable towards a Bachelor of Arts degree.

Courses Offered

Linguistics 29.100

Introduction to Linguistics

Elementary principles and methods of descriptive analysis of language; historical linguistics and the history of

linguistics; relationship of language to other aspects of culture.

Day and Evening divisions.

Linguistics 29.200

Syntactic Analysis

Introduction to several models of grammatical description; exercises in analysis of grammatical categories and structures in several languages.

Prerequisite: Linguistics 29.100 or any of the courses in List A, or permission of the instructor
Evening division.

Linguistics 29.201★

Phonetics

Recognizing, transcribing and producing speech sounds; the I.P.A. system of transcription; the nature of the speech-producing mechanism; the acoustics of speech sounds.

Prerequisite: Linguistics 29.100.

Day division, First term.

Linguistics 29.202★

Phonology

The sound-systems of languages; methods for the analysis and description of sound-systems. The course will concentrate on generative theory, with comparisons to other theories.

Prerequisite: Linguistics 29.201★.

Day division, Second term.

Linguistics 29.220

Teaching English as a Second Language

First and second language learning; contrastive analysis of English and other languages; principles of teaching English to non-native speakers.

Prerequisite: Linguistics 29.100, or permission.

Day division.

Linguistics 29.222★

Practicum in the Teaching of English as a Second Language

Classroom techniques of learning and teaching English as a second language at the pre-school, primary, secondary or adult education level. Observation of classes and practice teaching.

Prerequisite: Permission.

Day division: One and a half hours a week throughout the year.

Linguistics 29.261★

Anatomy and Physiology of the Ear and Vocal Mechanism

A study of the organs and the systems of the body related to the processes of speech and hearing, including the process of respiration, physiology of the vocal apparatus and the mechanism of the ear.

Prerequisite: Linguistics 29.100, or permission.

Not offered 1975-76.

Linguistics 29.262 ★

Bases of Speech Science

An examination of some of the fundamentals of voice communication, speech analysis and speech synthesis, including methods of speech transmission, techniques for speech analysis and synthesis and questions concerning intelligibility.

Prerequisite: Linguistics 29.261 ★ or 29.100, or permission.

Day division, First term.

Linguistics 29.285

Structures of English

An introduction to the phonology, morphology and syntax of the English language; questions of usage and style, especially in the light of the development of the language and of the kinds of variation which occur in languages; implications for the teaching of English as a native language.

Prerequisite: Linguistics 29.100.

Day division.

Linguistics 29.300

Linguistic Practicum

Field methods and techniques in language analysis; the use of informants. Students will work intensively on the analysis of a language under the supervision and direction of the instructor, and will report on their work in class discussions.

Prerequisites: Linguistics 29.200, 29.201 ★ and 29.202 ★.

Day division.

Linguistics 29.311 ★

Historical Linguistics

Principles and methods of the historical analysis of languages; the comparative method; internal reconstruction; sound change.

Prerequisites: Linguistics 29.201 ★ and 29.202 ★.

Day division, First term.

Linguistics 29.312 ★

Language Families

A survey of the historical development and linguistic classification of a selected number of language families, including Indo-European, Semitic, Algonquian, Bantu and others.

Prerequisite: Linguistics 29.311 ★, or permission.

Not offered 1975-76.

Linguistics 29.320 ★

Linguistics and the Teaching of Languages

Applications of linguistics in teaching second languages.

Prerequisites: Linguistics 29.200, 29.201 ★ and 29.202 ★ or permission.

Not offered 1975-76.

Linguistics 29.332 ★

Semantics

The study of meaning from a linguistic point of view.

Prerequisite: Linguistics 29.100, or permission.

Not offered 1975-76.

Linguistics 29.333 ★

The Lexicon

The place of words in the study of language. Syntactic aspects of word usage. Semantic relations among words. Sign words and signal words.

Prerequisite: Linguistics 29.332 ★.

Not offered 1975-76.

Linguistics 29.361 ★

Psycholinguistics

Language performance and language use: the production and perception of language; psychological processes involved in speech performance; the relevance of these questions to linguistic theory.

Prerequisite: Linguistics 29.201 ★, 29.202 ★, 29.261 ★ or 29.262 ★, or permission.

Day division, First term.

Linguistics 29.362 ★

Theories of Language Development

Theory and research related to the acquisition and development of phonology, syntax, semantics and verbal categorization in the child; an examination of the influence and compatibility of Piaget, Skinner and Chomsky; discussion of the relevance of the notions of competence and performance.

Prerequisite: Linguistics 29.361 ★, or permission.

Not offered, 1975-76.

Linguistics 29.372 ★

Sociolinguistics

The place of language within the structure of society; bilingual and multilingual communities and how these communities interact among themselves and with monolingual communities; language, social mobility and social stratification. The course will include a survey of the sociolinguistic situation in selected areas of the world.

Prerequisite: Linguistics 29.100, or permission.

Not offered, 1975-76.

Linguistics 29.390

Independent Study

Research under the supervision of a member of the Department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project will be offered in any one year. Normally open only to Third and Fourth year students.

Prerequisite: Permission.

Linguistics 29.391 ★

Independent Study

Research under the supervision of a member of the Department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project will be offered in any

term. Normally available only to Third and Fourth year students.

Prerequisite: Permission.

First term.

Linguistics 29.392★

Independent Study

Research under the supervision of a member of the Department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project will be offered in any term. Normally available only to Third and Fourth year students.

Prerequisite: Permission.

Second term.

Linguistics 29.401★

Advanced Phonology

A continuation of Linguistics 29.202★. Among topics to be covered: the methodological problems of phonology, the problems of markedness and natural rules, and other current developments.

Prerequisites: Linguistics 29.202★ and permission.

Not offered 1975-76.

Linguistics 29.402★

Advanced Syntax

A continuation of Linguistics 29.200. Advanced work in syntactic analysis.

Prerequisites: Linguistics 29.200 and permission.

Day division, First term.

Linguistics 29.409★

Seminar in Current Issues in Linguistics

The investigation of a theoretical issue that is currently a subject of controversy in linguistics, the topic being selected each year by the students and faculty.

Prerequisite: Open only to Third and Fourth year Honours students in Linguistics, except for the special cases to whom permission may exceptionally be given.

Day division, Second term.

Linguistics 29.412★

Seminar in Historical Analysis

Detailed investigation of the history of one or another language or language families, including reconstruction and development of change. This course may be taken more than once provided a different language or language family is being studied.

Prerequisite: Linguistics 29.311★ or 29.312★.

Day division, Second term.

Linguistics 20.420

Seminar in Teaching Second Languages

Advanced study of linguistic problems involved in the teaching of second languages.

Prerequisites: Linguistics 29.320, or 29.220 and permission.

Not offered 1975-76.

Linguistics 29.461★

Experimental Linguistics

Experimental phonetics; the investigation of linguistic performance; the testing of propositions derived from the theory of linguistic competence.

Prerequisite: Permission.

Day division, Second term.

Linguistics 29.464★

Speech and Language Problems

An examination of congenital, developmental and acquired disorders of language, speech and voice: prevalence, types, causes and effects; related research.

Prerequisite: Linguistics 29.361★ or 29.362★.

Day division, Second term.

Linguistics 29.471★

Seminar in Sociolinguistics

Advanced study in a selected topic in the relation between language and society.

Prerequisite: Linguistics 29.372★.

Not offered, 1975-76.

Linguistics 29.490

Tutorial in Linguistics

A course designed to permit a student to pursue his interests in a selected area of linguistics. The student prepares papers as a basis for discussion with his tutor. The topic of study must have the prior approval of the tutor and the Department. The course is available only to Fourth year Honours students, and may be taken only once.

Linguistics 29.491★

Tutorial in Linguistics

A course designed to permit a student to pursue his interests in a selected area of Linguistics. The student prepares papers as a basis for discussion with his tutor. The topic of study must have the prior approval of the tutor and the Department. The course is available only to Fourth year Honours students, and may be taken only once.

First term.

Linguistics 29.492★

Tutorial in Linguistics

A course designed to permit a student to pursue his interests in a selected area of Linguistics. The student prepares papers as a basis for discussion with his tutor. The topic of study must have the prior approval of the tutor and the Department. The course is available only to Fourth year Honours students, and may be taken only once.

Second term.

Other courses

List A: Related Courses

The following courses will be accepted for credit in programs in Linguistics.

Classics

14.505 Introduction to Linguistics

Comparative Literature

17.501 Theory of Literature and Standard Problems in Comparative Literature

English

18.205 History of the Language

18.222 Introduction to Middle English

18.265 Linguistics and Style

French

20.300 Grammaire française

20.301 ★ Traduction

20.304 ★ Phonétique et phonologie françaises

20.401 Stylistique

20.403 ★ Histoire de la langue française

20.405 Linguistique générale et linguistique française

20.501 Aspects de la linguistique

German

22.212 ★ Descriptive Analysis of Present Day German

22.312 Linguistic Stylistics

22.412 History of the German Language

22.580 ★, 22.581 ★ Linguistic Problems

Philosophy

32.230 Logic

32.380 Moore, Russell and Wittgenstein

32.481 ★ Philosophy of Language

Russian

36.203 Russian Grammar

36.300 Russian Style and Composition

36.303 Russian Translation

36.415 History of the Russian Language

Sociology and Anthropology

54.371 ★ Anthropological Linguistics

54.430 Culture and Communication

Spanish

38.303 ★ Spanish Phonetics and Phonology

38.505 ★, 38.506 ★ History of the Spanish Language

List B: Non-Indo-European Languages

The following courses will satisfy the requirement of a non-Indo-European language for students Majoring in Linguistics.

Linguistics 29.380

Non-Indo-European Language Study I

A course offering introductory study of a non-Indo-European language. This course may be offered twice provided a different language is being studied.

Prerequisite: Second year standing.

Not offered 1975-76.

Linguistics 29.381 ★

Non-Indo-European Language Study II

A half course offering introductory study of a non-Indo-European language. This course may be offered twice provided a different language is being studied.

Prerequisite: Second year standing.

Evening division, First term.

Linguistics 29.382 ★

Non-Indo-European Language Study III

A half course offering introductory study of a non-Indo-European language. This course may be offered twice provided a different language is being studied.

Prerequisite: Second year standing.

Not offered 1975-76.

Religion

34.015 Introduction to Hebrew

34.215 Readings in Biblical Hebrew

34.216 Classical Arabic

34.392 Language Tutorial

Mathematics

Bachelor of Arts Programs

The Department of Mathematics (Faculty of Science) offers programs leading to B.A. Major and Honours degrees (as well as B.Sc. degrees) in both Mathematics and Mathematical Sciences. Also available are combined Major degree programs and a number of combined Honours degree programs such as Economics and Mathematics, German and Mathematics, Geography and Mathematics, Mathematics and Philosophy.

For full details please consult pp. 354-371.

Officers of Instruction

Chairman

John Churchill

Associate Chairman

William Amtmann

Professors

John Churchill

William Amtmann

Associate Professor

Robert Fleming

Assistant Professors

Alan Gillmor

David Piper

Adjunct Professor

Helmut Kallmann

Sessional Lecturers

William Bowen

Ross Pratt

Ann Schau

Jean Trevelyan

General Information

The Department offers courses leading to both Major and Honours degrees in Music. The purpose of these courses is not principally to train students in the performing aspects of the subject (although active participation in Choral and instrumental groups will be strongly recommended and half courses are given in applied music for Honours and Majors as adjuncts to academic study) but rather to promote an intellectual and aesthetic understanding of music as an expression of human cultural activity. The study of musical history and of the techniques and materials of musical creation will form the basis of all study and all students will be encouraged to examine the meanings and motivations of the art and to develop their speculative and critical responses to it in both historical and contemporary contexts.

Aural training classes will be provided by the Department and will be compulsory for those registered in Music 30.160 and 30.260. Music 30.060 will be provided by the Department for students who need essential rudimentary musical knowledge including elementary keyboard skills. This course will, however, *not* be accepted as fulfilling one of the courses required for a degree in Music.

Classes of instruction in recorder playing will also be

provided and may be available to students other than those registered in Music courses if numbers allow.

Students entering First year who plan to take a Major or Honours in Music are advised to consult the Department as early as possible to plan their courses. General requirements of the Faculty of Arts should also be read carefully.

Major Programs

The Major Program in Music consists of Music 30.110, 30.160 (for Majors and Honours this will include a performance laboratory which is numbered Music 30.115 ★). Beyond First year the program consists of at least four and a half courses, of which 30.215 ★ must be one and of which at least two must be at the 300 level.

Special arrangements will be made for students who wish to propose a Combined Major.

Honours Programs

Honours in Music (B.Mus.)

The Honours program consists of Music 30.110, 30.160 (including a performance laboratory which is numbered Music 30.115 ★) and 30.260. Beyond First year the program consists of at least seven and a half courses in Music, which must include Music 30.215 ★, 30.490 (double weight) and six other courses as approved by the Department. A grade of at least C- will be required in Music 30.160 and 30.260. (Qualifying University year students to be considered individually and the requirements suited to the student individually according to his or her other academic standing.)

Furthermore, Honours students will normally be required:

1. To pass at any time prior to registration for the last five course credits of their program a reading examination in either French, German, Italian or Latin language.
2. To take one or more courses in Art History.
3. To take one or more courses in Philosophy, preferably Philosophy 32.240 (Aesthetics).
4. To take a 200-level (or above) History course.

Students in Music are also urged to consider Physics 75.195 (Physics of Music) and English 18.401 (Poetry and Music) as courses from which they could benefit.

It is the responsibility of the student to consult the departments concerned as early as possible to ensure that all necessary prerequisites are fulfilled.

Combined Honours Programs (B.A. Hons.)

Students who wish to propose a combined Honours program must consult the Department. Normally they will be required to take six courses of which Music 30.160 and Music 30.490 must be included, the latter to be given double weight in computing the class of degree awarded.

Courses Offered

Music 30.060

Elementary Materials of Music

A course for those who, although interested in the theory of music, have had no opportunity to study it systematically. Rudiments, elementary theory and the basics of keyboard harmony will be taught by means of an audio-visual method that makes use of programmed instruction, and there will also be some elementary musical dictation.

Evening division: Lectures three hours a week.

A. Schau

Music 30.100

Introduction to the Music of Western Civilization

This course will provide a general perspective of musical history from the Renaissance to the present within the context of Western civilization. It will include a consideration of main trends and significant personalities and will also include the structural analysis of important musical forms.

Day division: Lectures three hours a week.

A. Gillmor

Evening division: Lectures three hours a week.

W. Bowen

Evening division (off campus): Lectures three hours a week.

R. Fleming (co-ordinator)

Music 30.110

The Music of Western Civilization

A somewhat more detailed and technical study of Western music than the course Music 30.100, intended primarily for those who are likely to become Major or Honours students. Others who possess the requisite musical background may be admitted after consultation with the Department.

Prerequisite: Permission of the Department.

Day division: Lectures three hours a week.

D. Piper

Music 30.115★

Applied Music

Instruction for Music Majors and Honours only in an instrument of their choice (or voice). A reasonable stan-

dard of achievement will be demanded on entry and every prospective student will be required to attend an audition conducted by the Department before being admitted. There will be a further audition before a student may proceed to Music 30.215★.

Individual tuition, one half hour per week as part of Music 30.160.

Music 30.160

Materials and Techniques of Music

A theoretical and practical study of rhythm, melody, harmony, counterpoint and structures through the style of the baroque and early classical periods. Aural training, keyboard harmony and the writing of music will be studied.

Prerequisite: Some keyboard facility (or facility in the classical guitar may be considered) and permission of the Department. A simple placement test will be conducted at Registration and will be compulsory for all those who wish to enrol. Specimen tests may be obtained from the Department.

Day division: Lectures two and a half hours a week plus seminars and prescribed laboratory work (Music 30.115★).

Music 30.201

The Vocal and Choral Literature of Western Music

A study of musical history through the consideration of song, opera, oratorio and all forms of music for voice or voices.

Prerequisite: Music 30.100, or permission of the Department.

Evening division: Lectures three hours a week.

A. Gillmor

Music 30.202

The Keyboard Literature of Western Music

A study of musical history through keyboard repertory.

Prerequisite: Music 30.100, or permission of the Department.

Not offered 1975-76.

Music 30.203

Orchestral and Chamber Music Literature

A study of musical history through the repertory of concerted instrumental music.

Prerequisite: Music 30.100, or permission of the Department.

W. Amtmann

Music 30.210

Stylistic and Structural Analysis

A study of certain selected major works and the exploration in some depth of their cultural backgrounds, styles, and constructional techniques.

Prerequisite: Music 30.110, 30.160 or permission of the Department.

Day division: Lectures three hours a week.

J. Churchill

Music 30.215 ★**Applied Music**

A continuation of 30.115 ★. An audition will be necessary before a student may proceed to 30.315 ★.

Individual tuition, one half hour per week.

Music 30.260**Materials and Techniques of Music**

A continuation of Music 30.160. The study will progress to more complicated and advanced stages involving the study of styles from European modal writing to twentieth century idioms. Keyboard harmony, aural dictation and written work will form the basis of the study.

Prerequisite: Music 30.160, or permission of the Department.

Day division: Lectures two hours a week plus seminars and prescribed laboratory work.

J. Churchill, J. Trevelyan

Music 30.270**Music of the Western Christian Church from the Reformation to the Present**

Study of the history and repertory of the music of the Protestant Church in Europe and North America. Part of the course will be devoted to the problems of performance and there will be a measure of choral singing and organ playing as part of the stylistic study.

Prerequisite: Permission of the instructor.

Evening division: Lectures three hours a week.

J. Churchill

Music 30.299**Instrumental and Vocal Literature studied *in situ***

A course designed to study the music of a chosen country in the environment in which it was composed and originally performed. This will normally be offered as a summer course and given wholly or partly in the country concerned. The locale will vary from year to year and will be chosen in conjunction with other departments of the university giving overseas courses which may be of help to music students, e.g. language departments. Students will be required to attend seminars and to undertake prescribed reading before departure.

Prerequisite: Permission of the Department.

Not offered 1975.

Music 30.310**Music Cultures of the World (Elementary Ethnomusicology)**

A comparative and analytical study of music in non-literate, folk, and Asian high cultures, through an examination of musical instruments, theoretical systems, and the role of music in society.

Prerequisite: Permission of the Department.

Evening Division: Lectures three hours a week.

A. Gillmor

Music 30.315 ★**Applied Music**

A continuation of Music 30.215 ★. An audition will be

necessary before a student may proceed to Music 30.415 ★.

Individual tuition, one half hour per week.

Music 30.320**Twentieth Century Music**

Music since *Tristan und Isolde* including an examination of all modern idioms. The survey will include significant European figures and contemporary Canadian and American composers.

Prerequisite: Music 30.110, 30.160, or permission of the Department.

Summer 1975, Day division.

Not offered 1975-76.

Music 30.330**The Classical and Romantic Period**

A survey of Western music from the *style galant*, through Mozart, Haydn, Beethoven and the nineteenth century Romantic composers. Important works and composers will be considered and the social changes which provide their background.

Prerequisite: Music 30.110, 30.160, or permission of the Department.

Day division: Lectures three hours a week.

W. Amtmann, A. Gillmor

Music 30.345**Mediaeval and Renaissance Music**

A survey of European music and its environment from the Middle Ages to the year 1600.

Prerequisite: Music 30.110, 30.160, or permission of the Department.

Evening division: Lectures three hours a week.

W. Amtmann

Music 30.350**Baroque Music**

A survey of European music and its environment from approximately 1600 to the deaths of Bach and Handel.

Prerequisite: Music 30.110, 30.160, or permission of the Department.

Day division: Lectures three hours a week.

D. Piper

Music 30.355 ★, Music 30.356 ★**Specialized Studies in Selected Topics**

Courses to enable students to study in depth one or more significant musical *genres*. Topics will be selected from such areas as: the pianoforte concertos of Mozart; the music of the English Reformation; myth and legend in German Romantic Opera; formal processes in the music of Stockhausen; fugue in Beethoven; Satie and his *milieu*; and may involve individual research and presentation from each student.

These two half courses will be offered consecutively and students should consult with the Department for further details concerning course content.

Prerequisite: Permission of the Department.

Members of the Department

Music 30.360

Theory and Composition

A specialized course for students with an aptitude for composition in which basic techniques will be studied and applied.

Prerequisite: Permission of the Department.

Day division.

R. Fleming, D. Piper

Music 30.365

Instrumentation

A study of the instruments of the orchestra, their historical background, ranges, tonal qualities, technical peculiarities and transpositions. Score reading, and practical scoring for various instrumental ensembles, orchestra and band will be undertaken. Application of these techniques for use in concert music as well as background music for film and television will be discussed.

Prerequisite: Permission of the instructor.

Lectures and laboratories to total three hours a week.

R. Fleming

Music 30.370

Canadian Music

A study of Canadian music from its earliest beginnings to the present relating it to the North American scene.

Prerequisite: Permission of the Department.

Evening division: Lectures three hours a week.

W. Amtmann (co-ordinator)

Music 30.390

Tutorial Study

A dissertation on a chosen subject or subjects. Freedom of choice will be allowed in consultation with a member of the Department.

Prerequisite: Permission of the Department.

Day division.

Music 30.400

Senior Seminar

A seminar primarily (though not necessarily exclusively) for Honours students. The fields of study will be chosen in consultation with those who enrol and a high level of personal research and subsequent presentation will be required.

Prerequisite: Permission of the Department.

Not offered 1975-76.

Music 30.415 ★

Applied Music

A continuation of 30.315 ★ for Honours students only. A final audition in the form of a short prepared recital will be required.

Individual tuition, one half hour per week.

Music 30.460

Advanced Composition including Electronic Composition

Studio work to understand and operate the techniques of aleatory and electronic musical composition.

Prerequisite: Permission of the Department.

Day division.

D. Piper

Music 30.490

Advanced tutorial study

Courses Planned for Summer School 1975-79

The Department of Music will offer Music 30.100 every year in the Evening division.

Beginning in the summer of 1976, Music 30.060 will be offered every year in the Evening division.

Beginning in the summer of 1976, one of Music 30.160 and 30.260 will be offered in alternating years in the Evening division.

Other courses will be rotated over a period of four years in such a way that students may be sure of making their degree requirements.

Music 30.390 and 30.490 will also be supervised in the summer period whenever there is a demand.

Officers of Instruction

Chairman

John W. Leyden

Co-ordinator, St. Patrick's College

B.I. Egyed

Professors

Bernard Wand

J.C.S. Wernham

Associate Professors

Andrew Jeffrey

J.T. O'Manique (St. Patrick's College)

Stephen Talmage

James M. Thompson

Assistant Professors

J.A. Brook

Stanley G. Clark (St. Patrick's College)

D. Dubrule (St. Patrick's College)

B.E. Egyed (St. Patrick's College)

Marvin Glass

John W. Leyden

Randal R.A. Marlin

J. Wolfe

Courses Open to First Year Students

The following full courses are open to First year students: Philosophy 32.105, 32.110, 32.120, 32.140 and 32.150. The following half courses are open to First year students: in the First term Philosophy 32.103 ★ and 32.106 ★; in the Second term Philosophy 32.101 ★ and 32.107 ★. Credit cannot be received for both Philosophy 32.103 ★ and 32.102 ★, or for either of 32.103 ★ and 32.107 ★, and for 32.105. Credit will not be given for more than two full courses or the equivalent at the 100 level.

Major Program

Majors in Philosophy will take a minimum of six courses in Philosophy including five courses beyond the 100 level.

These courses must be chosen so as to include one of Philosophy 32.205, 32.215, 32.305; one of Philosophy 32.230, 32.250, 32.280, 32.380; and one of Philosophy 32.210, 32.240, 32.330.

Special arrangements will be made for students proposing a Combined Major program. All Majors will arrange their programs in consultation with the Department.

A student who enters the Major program before the end of First year may not continue in it unless, before the beginning of Second year, he has obtained a grade of C- or better in one of the introductory courses in Philosophy. A student may not enter the Major program at the end of First year, or later, unless he has obtained a grade of C- or better in one of the introductory courses in Philosophy, or a grade of B- or better in Humanities 10.100 or Religion 34.100.

Honours Program

The Honours program may be entered at the beginning of the First year or by transfer from the Major course (p. 58). A full introductory course or two half courses in Philosophy will be taken in the First year. In certain circumstances this requirement will be waived for students entering the Honours or Combined Honours program after the First year.

The Honours program will consist of a minimum of twenty full courses or the equivalent. Of these at least nine full courses, or the equivalent, including eight beyond the 100 level, will be courses in Philosophy. The program for the Second and subsequent years will be planned in consultation with the Department. The following courses will be required:

1. One of Philosophy 32.205, 32.270, 32.305, 32.380;
2. Either 32.210 or 32.330;
3. 32.215;
4. 32.230;
5. Either 32.250 or 32.380;
6. 32.306 ★ (if 32.305 not taken under 1);
7. Equivalent of two full courses at the 400 or 500 level.

Combined Honours Programs

Combined Honours Programs are available in Philosophy with the following subjects: Art History, English, History, Law, Political Science, Greek, Economics, French, German, Mathematics, Psychology, Religion and Sociology/Anthropology. Special arrangements may be made for other combinations.

The normal Philosophy requirements will be seven courses to include six beyond the First year level including one full course or equivalent at the 400 or 500 level. Details of these programs may be obtained from the Department.

Graduate Program

The Department of Philosophy offers studies leading to the degree of Master of Arts. For information see the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section. p. 217.

Courses Offered

Philosophy 32.101★

Ethics and Philosophy of Religion

An examination of arguments for and against the existence of God; the nature of religious language and the meaning and justification of moral judgments.

Day division, First term: Lectures and discussion three hours a week.

J. Wolfe

Philosophy 32.102★

Knowledge and Meaning

The justification of our belief in an external world and in the possibility of predicting the future, the nature of knowledge and of ultimate reality, the nature of language and the meaning of "meaning".

Day division, Second term: Lectures and discussion three hours a week.

J.M. Thompson

Philosophy 32.103★

Philosophical Texts I

An examination, both historical and critical, of selected philosophical texts. Works to be studied will include Plato, *The Republic* and Descartes, *Meditations*.

Not offered 1975-76.

Philosophy 32.105

Philosophical Texts

An introduction to some central philosophical issues through an examination, both interpretive and critical, of a selection of influential works in Western philosophy. While the texts to be studied will be representative of different periods from Plato to the present day, emphasis will be placed on the relevance of previous thinking to current philosophical debates. In 1975-76 works will include Plato, *The Republic*; Descartes, *Meditations*; Mill, *Utilitarianism*; Hume, *An Enquiry Concerning Human Understanding*.

Evening division: Lectures and discussion three hours a week.

A. Jeffrey

Philosophy 32.106★

Metaphysics and Truth

A discussion of the following questions: how mind is related to body; what freedom is and whether it is possible; what truth is and how philosophical truths differ from truths of science.

Day division, Second term: Lectures and discussion three hours a week.

J.A. Brook

Philosophy 32.107★

Philosophical Texts II

An examination, both historical and critical, of selected philosophical texts. Works to be studied will include Hume, *An Enquiry Concerning Human Understanding*; Ayer, *Language, Truth and Logic*.

Not offered 1975-76.

Philosophy 32.110

Consciousness and Reality

An examination of problems drawn from historical and contemporary sources concerning the relation of consciousness and reality. The questions to be discussed will include: Are we conscious of a world existing independently of us? Does our consciousness extend only to objects in the world or to realities beyond this realm? Is consciousness reducible to a physical process? Can consciousness exist independently of the body? Is there a consciousness of self and what is the relation between self and the body of which we are conscious? Is there consciousness of value existing objectively in the universe?

Day division: Lectures and discussion three hours a week.

A. Jeffrey, J. Wolfe

Philosophy 32.120

Reason and Argument

An examination of the nature of controversy and of procedures for help in resolving it by rational means. The course will include an introduction to formal logic. A variety of extended arguments will be considered. Some of these arguments (about half) will be philosophical; others will be arguments in support of controversial theses in such fields as morals, politics, education and theology.

Day division: Lectures and discussions three hours a week.

S. Talmage

Philosophy 32.140

Explanation and Objectivity

An examination of certain notions which are common to a variety of disciplines. Explanations occur in the sciences, natural and social, in history, in literary studies. The course will investigate the role of explanation in these disciplines and the types of explanation characteristic of them. The claim to be objective is made in most disciplines and is disputed in some. The course will distinguish different kinds of objectivity and will discuss

in what sense or senses different disciplines can be said to be objective.

Day division: Lectures and discussion two hours a week.
J.C.S. Wernham

Philosophy 32.150

Contemporary Moral, Social, and Religious Issues

A critical examination of some of the philosophical problems associated with such topical issues as atheism vs. theism; the meaning of life; egoism; moral relativism; sexual ethics; philosophy of education; socialism vs. capitalism; legal paternalism; civil disobedience; abortion; and women's liberation.

Day division: Lectures and discussion three hours a week.

M. Glass

Philosophy 32.205

Greek Philosophy

An examination of early speculation in Greece, the roles of the Sophists and of Socrates, together with a study of selected topics in the works of Plato and Aristotle.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion three hours a week.

A. Jeffrey

Philosophy 32.210

Ethics

An examination of historical and contemporary discussions of the principal questions in moral philosophy. First term: The secularization of ethics, Hobbes on egoism and obligation, Butler on conscience, Hume on rationalism in ethics, Kant on moral principles. Second term: relativism in ethics, ethical egoism, "doing more than one's duty", deriving moral judgments from empirical judgments, moral rights and moral duties. In addition, seminar papers will be presented on such questions as the nature and justification of punishment, the morality of abortion, the moral philosophy of Ayn Rand, and the legalization of marijuana.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Evening division: Lectures and discussion three hours a week.

R.R.A. Marlin

Philosophy 32.211★

History of Ethics

The first half of Philosophy 32.210, Ethics. (See the description for Philosophy 32.210.)

Prerequisite: An introductory course in Philosophy or permission of the Department.

Evening division, First term: Lectures and discussion three hours a week.

R.R.A. Marlin

Philosophy 32.215

Modern Philosophy: 1600-1800

An examination of the major philosophical writers of the seventeenth and eighteenth centuries. Selections will be studied from the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion three hours a week.

J.C.S. Wernham

Philosophy 32.230

Logic

An introduction to symbolic logic together with a discussion of some problems in the philosophy of logic.

Day division: Lectures and discussion three hours a week.

J.W. Leyden

Philosophy 32.232★

Philosophy of Science

An introduction to the philosophy of science including discussion of scientific explanation and the relation between theory and observation.

Prerequisites: An introductory course in Philosophy, 32.230, or permission of the Department.

Day division, Second term: Lectures and discussion three hours a week.

S. Talmage

Philosophy 32.233★

Philosophy of Social Science

The examination of the types of explanation considered to be appropriate to the understanding of human nature and conduct.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Not offered 1975-76.

Philosophy 32.240

Aesthetics

Analysis of problems in the description, interpretation and evaluation of works of art, including music, literature and the visual arts; together with the study of types of aesthetic theory.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion two hours a week.

J.M. Thompson

Philosophy 32.250

Philosophy of Mind

What is it to have a sense of one's own identity? What do we know of the self? What is personal identity and how is it related to responsibility, love, etc.? What is the relation of 'mind' to body? These are topics to be covered in the first term. Topics in the second term are selected according to students' interests, and often include:

free-will; pleasure and pain; mental illness; desire and action; can we will our beliefs; and how to treat persons as persons, not things.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Discussion and lectures three hours a week.

J.A. Brook

Philosophy 32.251★

Personal Identity and the Self

The first half of Philosophy 32.250, Philosophy of Mind. (See the description for Philosophy 32.250.)

Prerequisite: An introductory course in Philosophy or permission of the Department.

Discussion and lectures three hours a week.

Day division, First term: Discussion and lectures three hours a week.

J.A. Brook

Philosophy 32.260

Philosophy of Religion

An investigation, both historical and systematic, into the relations between faith and reason, together with an examination of the question of the existence and nature of God. Texts to be studied will be representative of medieval Scholasticism, German Idealism, Existentialism and philosophical analysis. (Also listed as Religion 34.260.)

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion two hours a week.

J.M. Thompson, J.C.S. Wernham, J. Wolfe

Philosophy 32.270

Existentialism and Phenomenology

A study of recent and contemporary philosophical movements in continental Europe. An account will be given to the historical origins of these movements in the thought of Kierkegaard and Husserl. Special attention will be paid to the philosophy of Sartre. The views of Nietzsche, Heidegger, Camus and Merleau-Ponty, together with those of some of their commentators, will also be discussed.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Not offered 1975-76.

Philosophy 32.280

Language and Communication

The nature of language as a system of human communication, theories of meaning and meaningfulness, the relation of language to reality and thought.

Not offered 1975-76.

Philosophy 32.291★

Philosophy of Revolution

A study of concepts and theories commonly found in revolutionary literature. Concepts examined will include alienation, violence, repression and revolution. Literature

of various authors will be considered, including Marx, Lenin, Trotsky, Mao, Luxemburg, Sorge, Sorel, Fanon, Guevara, Marighela, Vallières.

Not offered 1975-76.

Philosophy 32.305

Modern Philosophy: 1800-

An examination of some major philosophical writers of the nineteenth and twentieth centuries: German Idealism from Kant to Hegel; the anti-Hegelian philosophies of Marx, Kierkegaard, Schopenhauer and Nietzsche; American Pragmatism (James, Peirce and Dewey).

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion three hours a week.

J.M. Thompson

Philosophy 32.306★

Kant to Hegel

The first half of Philosophy 32.305: The Development of German Idealism from Kant to Hegel.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division, First term: Lectures and discussion three hours a week.

J.M. Thompson

Philosophy 32.330

Social and Political Philosophy

An analysis of the concepts used to explain and justify social and political thinking or action: state, society, the common good, justice, rights and obligations, punishment and liberty, and a consideration of the moral basis of political obligation.

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion two hours a week.

B. Wand

Philosophy 32.350

Philosophy of Law

Theories of the nature and the philosophical basis of law. Classical theories; natural law; the development of positivism; utilitarianism; the analytical theory and the pure theory of law; the historical and sociological schools of jurisprudence, modern legal realism. Law and ethics, law and morality. (Also listed as Law 51.310.)

Prerequisite: An introductory course in Philosophy or permission of the Department.

Day division: Lectures and discussion three hours a week.

R.R.A. Marlin, D. Wayand (Law)

Philosophy 32.380

Moore, Russell, Wittgenstein

A brief account of the Idealism of Bradley will set the context for a study of the reactions of Moore and Russell.

Their contributions to metaphysics, theory of knowledge and linguistic analysis will be examined and attention given to their philosophical development. In the Second term there will be a concentrated study of the later work of Wittgenstein. The approach will be both interpretive and problem-oriented.

Prerequisites: Two courses in Philosophy or permission of the Department.

Not offered 1975-76.

Philosophy 32.391 ★

Philosophical Problems

Topic to be chosen annually from the following: metaphysics-epistemology, metaphilosophy. This course is primarily intended for Major or Honours students in their Third year.

Second term: Lectures and discussion three hours a week.

S. Talmage

Philosophy 32.399

Independent Study

Normally restricted to students with at least three courses in Philosophy; the student will submit topics for approval and present papers for grading.

■ **Fourth Year Courses**

Philosophy 32.406 ★

Descartes

Prerequisite: Final year Honours standing in a Philosophy program or permission of the Department.

Day division, Second term: Seminar two hours a week.

J.C.S. Wernham

Philosophy 32.407 ★

Hume

An intensive study of selected texts.

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Not offered 1975-76.

Philosophy 32.408 ★

Kant

An intensive study of selected texts.

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, First term: Lecture and seminar, three hours a week.

J.A. Brook

Philosophy 32.409 ★

Marx

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, Second term: Seminar two hours a week.

M. Glass

Philosophy 32.411 ★

Action, Intention and Responsibility

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, First term: Seminar two hours a week.

R.R.A. Marlin

Philosophy 32.416 ★

Medieval Philosophy

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Not offered 1975-76.

Philosophy 32.421 ★

Epistemology

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, First term: Seminar two hours a week.

J. Wolfe

Philosophy 32.431 ★

Philosophy of Logic

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, First term: Seminar two hours a week.

S. Talmage

Philosophy 32.441 ★

Contemporary Moral or Political Philosophy

An intensive study of recent works in one or both of these areas.

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Day division, Second term: Seminar two hours a week.

B. Wand

Philosophy 32.481 ★

Philosophy of Language

Prerequisite: Final year Honours standing in a Philosophy program, or permission of the Department.

Not offered 1975-76.

Philosophy 32.490

Tutorial

Philosophy 32.491 ★

Tutorial

Graduate Courses Open to Undergraduate Students

The following graduate course may with permission be taken by Honours and Combined Honours students in their final year:

Philosophy

32.545 Departmental Seminar

Courses Offered at St. Patrick's College

Philosophy

07.120 Social and Political Philosophy

07.200 Science and Man

07.201 ★ Logic

07.220 Marxism

07.266 ★ Ethics

07.366 ★ Philosophies of Love

Courses Planned for Summer School and Evening Division, 1975-78

Summer 1975

32.110, 32.150, 32.215, 32.250.

Evening Division 1975-76

32.105, 32.210, 32.265.

Summer 1976

32.105, 32.150, 32.205, 32.230.

Evening Division 1976-77

32.120, 32.305, two 400 level half courses.

Summer 1977

32.140, 32.150, 32.270, 32.380.

Evening Division 1977-78

32.110, 32.205, 32.330.

Officers of Instruction

Chairman

N.H. Chi

Assistant Chairman

Jill McCalla Vickers

Coordinator St. Patrick's College

Frederic Kirk, Jr.

Supervisor of Graduate Studies

John H. Sigler; Assistant, Leo V. Panitch

Supervisor of Honours

Jon H. Pammett

Supervisor of Majors

Reginald A. Whitaker

Professor Emeritus

R.A. MacKay

Professors

Douglas G. Anglin

Bohdan R. Bociurkiw

Robert J. Jackson

Peyton V. Lyon

Henry B. Mayo

Kenneth D. McRae

Michael Oliver

Khayyam Z. Paltiel

T. Rakowska-Harmstone

Donald C. Rowat

Radoslav Selucky

V. Subramaniam

Harald von Riekhoff

Associate Professors

Claude Ake

Nguyen H. Chi

G. Bruce Doern

Frederic Kirk (St. Patrick's College)

David Kwavnick

Willard A. Mullins

John R. Nellis

George Roseme

Paul Rosen

John H. Sigler

Elliot L. Tepper

Richard J. Van Loon

V. Seymour Wilson

Assistant Professors

Jon Alexander

R.E. Bedeski

H.L. Black

Jane Jensen

David R. Leyton-Brown

Maureen A. Molot

Lynn K. Mytelka

Jon H. Pammett

L.V. Panitch

M. Selucka (St. Patrick's College)

I. Garth Stevenson

Brian W. Tomlin

Jill McCalla Vickers

Michael S. Whittington

Conrad J. Winn

Lecturers

Kenneth D. Hart

Reginald A. Whitaker

General Information

Ottawa provides a wealth of resources, both in personnel and in research materials, for the student of government, politics, public administration, and international relations. Undergraduates will be assisted in making the fullest use of these unique advantages of the national capital. The Political Science Department offers courses in the following fields of study: Canadian government and politics, comparative institutions and politics, public administration, international relations, political theory and methodology.

Students should note that it is possible to combine a Major or Honours in Political Science with a pattern of studies, such as urban studies, studies in developing areas, etc. Those wishing to do so should consult the Department for a suggested outline of courses.

Major Programs

A Major in Political Science requires Political Science 47.100; one of 47.230, 47.231, 47.232, or 47.270; and four or more additional courses in the Department.

A Combined Major, including Political Science, requires Political Science 47.100 and three or more additional courses.

Majors are advised to take Mathematics 69.101 and should take a number of courses in related Social Sciences. Final year Majors with the required standing, may, with permission, be admitted to Fourth year Honours courses. The entire program must be approved by the Department.

A Major must obtain at least C- in Political Science 47.100 to enter Second year and must maintain an overall average of at least C- in his Political Science courses to continue into Third year. For special supplemental examinations to raise grades, see p. 39.

Honours Programs

The Honours programs may be entered in the First year, or by transfer from Major programs, if sufficient standing has been obtained. Only students whose past record indicates the ability to meet the Department's language requirement, and to obtain at least a B- in the Honours essay will be recommended for Fourth year Honours. An Honours student may be approved for a Major degree at the end of the Third year if the requirements under the Major program have been completed. The following programs are available.

Honours in Political Science

For full Honours, twenty courses will be required, including at least nine courses in Political Science. The Political Science courses must comprise:

1. Political Science 47.100, 47.231, 47.270, and 47.498;

2. One full course (or two half courses), chosen from 47.200, 47.300★, 47.301★, 47.302★, 47.303★, 47.304★, 47.335★, 47.336★, 47.340, 47.366★, 47.400, 47.401★, 47.402★, 47.404★, 47.406★, 47.409;

3. One full course or two half courses, chosen from either (a) 47.215, 47.310, 47.312, 47.315, 47.320, 47.321, 47.322, 47.342, 47.405, 47.410, 47.415★, 47.420★, 47.421★, 47.422★; or (b) 47.260, 47.360★, 47.361★, 47.365★, 47.366★, 47.460, 47.461★, 47.462★, 47.466★, 47.482★, 47.483★;

4. Three free options, one of which must a seminar course;

5. *Language requirement:* The Department requires Honours students to have a knowledge of French. This requirement may be satisfied in one of two ways: (a) Successful completion of a First year French course, or its equivalent, preferably French 20.120; (b) The Department will conduct language examinations twice each year (October and February). Successful completion of this examination at any time prior to Fourth year will satisfy the language requirement. *Fourth year students are not eligible to take these examinations.* If the examination is attempted and failed, the student must then satisfy the language requirement by undertaking option (a) above.

Students from abroad, whose mother tongue is other than English, or students whose research interests require another language, may obtain permission from the Supervisor of Honours to substitute this language for French.

Candidates present a graduation essay on some topic involving independent investigation (Political Science 47.498); they may be examined orally on this essay and

must receive at least B- in this course. They must select a minor field or fields, preferably in Economics, History, Philosophy or Sociology. They are advised to take Mathematics 69.101 in their First year.

Combined Honours

Students intending to enter a program combining Political Science with another discipline should in their First year take Political Science 47.100 and the introductory course in the other discipline. For Combined Honours at least six courses in Political Science will be required, including:

1. Political Science 47.100, 47.231, 47.270 or its equivalent;

2. The equivalent of two courses, chosen from 2, 3 (a) or (b), listed for the full Honours program. The two courses may be chosen from one list;

3. One additional course.

Students must meet the same Fourth year requirements in each department as for full Honours, except that the graduation essay may be written for either department, and preferably should make use of both disciplines.

Students following a combined Honours program may not use cross-listed courses as Political Science credits.

Combined Honours, Journalism and Political Science

Students may select a course pattern which will lead, at their option, to either the degree of B.A. with Combined Honours in Journalism and Political Science or B.J. with Political Science. At the end of the Third year the student will elect to write his Honours Essay in either Political Science or Journalism. Should he select Political Science he will be awarded the degree of B.A., and should he select Journalism he will be awarded the degree of B.J. with Political Science.

1. Admission requirements: see p. 63, "Journalism requirements".

2. Course requirements: Students in this program must complete a total of twenty-one courses in four years. The courses consist of subjects from those listed as follows: *First Year:* Journalism 28.100 and 28.101★; Political Science 47.100, a First year French course, two approved options;

Second Year: Journalism 28.200 and 28.220; Political Science 47.231 and 47.270; an approved course in Canadian History. (Students who expect to practise Journalism in another country may be advised to choose a different history course);

Third Year: Journalism 28.320 and 28.321★ and 28.351★; two approved courses in Political Science; optional courses equivalent to one and half courses.

Fourth Year: Journalism 28.421 or 28.490; a Fourth year seminar in Political Science; either Journalism 28.498 (in which case the degree will be a B.J.) or Political Science 47.498 (in which case the degree will be a B.A., with Combined Honours); two approved options.

3. Language requirement: See item 5 under Honours description.

4. Standing: A student in the Journalism-Political Science program must maintain a standing sufficiently high at all times to satisfy the standards of both the School of Journalism and the Department of Political Science. Please refer to the statements of standing on p. 63 (Journalism) and p. 58 (Arts). Students must meet the same Fourth year requirements for each Department as for full Honours, except that the graduation essay may be written for either Department, and preferably should make use of both disciplines.

Combined Honours in Political Science and Sociology:

Students in this program are required to take six courses in Political Science including Political Science 47.100, 47.231, a Fourth year seminar, and 47.498 (if the Honours Essay is written in Political Science). In addition, the student must complete one of the following methodology sequences: **(a)** in the Second year, Political Science 47.270; in the Third year, Sociology 53.370; or **(b)** in the Second year, Sociology 53.200; in the Third year, Political Science 47.470. Political Science 47.470 may not be counted as the required Fourth year seminar course in Political Science.

Graduate Program

The Department of Political Science offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered

First Year

Political Science 47.100

Introduction to Political Science

Modern political ideas and institutions, with particular attention to Canada, Britain, and the United States.

Day and Evening divisions: Lectures and discussions three hours a week.

B.R. Bociurkiw, K.D. Hart, J. Jenson, F. Kirk, D. Kwavnick, M.A. Molot, L.K. Mytelka, W.A. Mullins, G. Roseme, P.L. Rosen, R. Selucky, E.L. Tepper, C.J. Winn
Summer 1975, Day division: Lectures and discussion ten hours a week.

D. Kwavnick

Summer 1975, Evening division: Lectures and discussion five hours a week.

J.H. Sigler

Second Year: Majors and Honours

Political Science 47.200

Canadian Government and Politics

A survey of the political process and political institutions in Canada.

Prerequisite: Political Science 47.100, or permission of the Department. Third year students in another discipline will normally be permitted to take this course without having taken Political Science 47.100.

Day and Evening divisions: Lectures and discussion three hours a week.

K.D. Hart, J. Jenson, D. Kwavnick, M.A. Molot, L.V. Panitch, G. Roseme, J.M. Vickers, R.A. Whitaker

Summer 1975, Evening division: Lectures and discussion five hours a week.

R.A. Whitaker

Political Science 47.215

Comparative Politics

An examination of concepts, theories and methods employed in the study of comparative politics, with particular emphasis on cross-national comparison of regimes and some of the major issues in the field.

Prerequisite: Political Science 47.100.

Day division: Lectures and discussion three hours a week.

R.E. Bedeski, R.J. Jackson

Summer 1975, Day division: Lectures and discussion ten hours a week.

R.J. Jackson

Political Science 47.230

History of Political Thought

A study of political philosophy and the problems and themes it seeks to clarify. Seminal ideas considered will be those of Plato, Aristotle, Machiavelli, Bacon, Hobbes, Locke, Rousseau, Burke, Hume, Bentham, J.S. Mill and Marx. (Only one of Political Science 47.230, 47.231 or 47.232 may be taken for credit.)

Prerequisite: Political Science 47.100.

Day and Evening divisions: Lectures and discussion three hours a week.

H.B. Mayo, P.L. Rosen, J.M. Vickers

Summer 1975, Evening division: Lectures and discussions five hours a week.

J.M. Vickers

Political Science 47.231

History of Political Thought

A survey of the development of Western political theory and related aspects of intellectual history from classical times to the end of the eighteenth century. Readings from Plato, Aristotle, Machiavelli, Bacon, Hobbes, Locke, Rousseau, Burke and others. (For Honours and graduate students in any discipline. Only one of Political Science 47.230, 47.231 or 47.232 may be taken for credit.)

Prerequisite: Political Science 47.100, or permission of the Department.

Day division: Lectures and discussion three hours a week.

K.D. McRae

Political Science 47.232

Introduction to Political Theory

A survey of continuing problems in political theory, including the nature and role of politics and of political theory; types of political theory; and some basic concepts. (Only one of Political Science 47.230, 47.231, or 47.232 may be taken for credit.)

Prerequisite: Political Science 47.100, or permission of the Department.

Not offered 1975-76.

Political Science 47.260

International Politics

A survey of the structure of the international system; concepts such as the balance of power, collective security and sovereignty; the formulation and instruments of foreign policy.

Prerequisite: Political Science 47.100, or permission of the Department.

Day and Evening divisions: Lectures and discussion three hours a week.

D.G. Anglin, D.R. Leyton-Brown, J.H. Sigler

Summer 1975, Day division: Lectures and discussion five hours a week.

H. von Riekhoff

Political Science 47.270

Political Inquiry

This course introduces the student to the elements of systematic political analysis. It covers all present modes of inquiry in the discipline, including survey research methods and their statistical background.

Prerequisite: Political Science 47.100.

Day and Evening divisions: Lectures two hours a week, laboratory or discussion one hour a week.

K.D. Hart, C.J. Winn

Summer 1975, Evening division: Lectures and discussion five hours a week.

N.H. Chi, C.J. Winn

Third Year: Majors and Honours

Political Science 47.300★

Provincial Government and Politics

A comparative examination of the political process and

political institutions in the Canadian provinces.

Prerequisite: Political Science 47.200, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

J.H. Pammett

Political Science 47.301★

Intergovernmental Relations

An examination of federal-provincial relations, including federal-urban and interprovincial relations.

Prerequisite: Political Science 47.200, or permission of the instructor.

Not offered 1975-76.

Political Science 47.302★

Canadian Municipal Government

An examination of the nature and problems of Canadian municipal government, including metropolitan and regional government and provincial-municipal relations. Prerequisites: Political Science 47.100, and preferably also 47.200, or completion of Second year in another discipline.

Evening division, First term: Lectures and discussion three hours a week.

J. Jensen

Political Science 47.303★

Canadian Urban Politics

An examination of the nature and problems of Canadian urban politics.

Prerequisite: Political Science 47.302★, or permission of the instructor.

Evening division, Second term: Lectures and discussion three hours a week.

J. Jensen

Political Science 47.304★

Political Parties and Elections in Canada

An examination of the evolution of the party system, the growth of major and minor party movements and the electoral process in Canada.

Prerequisite: Political Science 47.200, or a previous course in the political process.

Day division, First term: Lectures and discussion three hours a week.

K.Z. Paltiel

Political Science 47.310

Government and Politics in Africa

The evolution and functioning of African political systems, with emphasis on recent developments in West Central and East Africa.

Prerequisite: Political Science 47.100.

Day division: Lectures and discussion three hours a week.

D.G. Anglin

Summer 1975, Evening division: Lectures and discussion five hours a week.

M.J. Loney

Political Science 47.312

Government and Politics of East Asia

The evolution and functioning of the political systems of China, Japan, and Korea.

Prerequisite: Political Science 47.100, and preferably 47.215.

Day division: Lectures and discussion three hours a week.

R.E. Bedeski

Political Science 47.315

Government and Politics of South and South East Asia

This course on developing areas will acquaint the student with the patterns of colonial history, emergent political regimes and problems of development and foreign policy in the countries from Pakistan through the Philippine Islands, with special emphasis on problems of political change.

Prerequisite: Political Science 47.100, and preferably 47.215.

Evening division: Lectures and discussion three hours a week.

E.L. Tepper

Political Science 47.320

Soviet Government and Politics

A study of the environment and political culture of the Soviet political system; political socialization, communication, and elite recruitment; the structure and functioning of the Communist Party and governmental institutions; policy making and implementation, capabilities of the Soviet political system.

Prerequisites: Political Science 47.100, and preferably 47.215, or History 24.260.

Day division: Lectures and discussion three hours a week.

B.R. Bociurkiw

Political Science 47.321

Government and Politics of Western Europe

A survey of the political processes and institutions in the democracies of Western Europe, with emphasis on Britain, France, Italy and the German Federal Republic.

Prerequisite: Political Science 47.100, and preferably 47.215.

Not offered 1975-76.

Political Science 47.322

Government and Politics of the United States

American political thought, constitutional development, and the governmental process.

Prerequisite: Political Science 47.100, and preferably 47.215.

Day division: Lectures and discussion three hours a week.

J. Alexander

Summer 1975, Day division: Lectures and discussion ten hours a week.

G. Roseme

Political Science 47.330★

Politics and Literature

A study of imaginative prose in which political ideas and/or political settings dominate. Literature as political communication. The impact of literature upon politics, the peculiar value of literature in the study of politics, its shortcomings.

Prerequisites: Political Science 47.100 and permission of the instructor.

Evening division, First term: Lectures and discussion three hours a week.

G. Roseme

Political Science 47.333

Modern Political Thought and Ideology

An analysis of leading political concepts and ideologies since 1800, including utilitarianism, liberalism, conservatism, socialism and fascism.

Day division: Lectures and discussion three hours a week.

W.A. Mullins

Summer 1975, Day division: Lectures and discussion ten hours a week.

W.A. Mullins

Political Science 47.335★

Sources and Development of Canadian Political Ideas

An examination of the sources and development of Canadian political ideas and their relationship to political institutions and policies.

Prerequisite: Political Science 47.200, or permission of the instructor.

Not offered 1975-76.

Political Science 47.336★

Canadian Political Culture and Ideologies

An analysis of the elements of contemporary Canadian political culture, with special reference to the social bases of ideologies and to regional differences within Canada.

Prerequisite: Political Science 47.335★, or permission of the instructor.

Day division, Second term: Lectures and discussion three hours a week.

R.A. Whitaker

Political Science 47.340

Canadian Public Administration

A survey of the political and social impact of the federal public service in Canada, including the nature of bureaucracy, its role in policy making, and social and political control of the public service in Canada.

Prerequisite: Political Science 47.200, or permission of the instructor.

Day and Evening divisions: Lectures and discussion three hours a week.

D.C. Rowat, R.J. Van Loon

Summer 1975, Evening division: Lectures and discussion five hours a week.

G.B. Doern

Political Science 47.342

Comparative Public Bureaucracy

A comparative study of the evolution of bureaucracy in the Indian and Chinese civilizations and in Western Europe. Emphasis will be placed on detailed comparisons of administrative processes in the modern bureaucracies of Europe, North America and the developing countries.

Prerequisite: Political Science 47.100.

Day division: Lectures and discussion three hours a week.

V. Subramaniam

Political Science 47.360★

International Institutions

Origins, structure and functioning of international institutions with emphasis on the United Nations.

Prerequisite: Political Science 47.260, or permission of the instructor.

Evening division, First term: Lectures and discussion three hours a week.

D. Leyton-Brown

Political Science 47.361★

Theories of International Politics

A survey of theoretical approaches to the study of international politics including an examination of the major concepts used for analysis and explanation in the field.

Prerequisite: Political Science 47.260 or permission of the instructor.

Day division, Second term: Lectures and discussion three hours a week.

D. Leyton-Brown

Political Science 47.365★

Comparative Study of Foreign Policy

An examination of the utility of comparative analysis in the study of the objectives, strategies, and decision-making processes involved in the foreign policies of states.

Prerequisite: Political Science 47.260 or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

B.W. Tomlin

Political Science 47.366★

Canadian Foreign Policy

An examination of the traditions, domestic influences, objectives, capabilities and decision-making processes, and analysis of selected contemporary issues.

Prerequisite: Political Science 47.260, or permission of the instructor.

Evening division, Second term: Lectures and discussion three hours a week.

D. Leyton-Brown

Fourth Year: Honours and Graduate

Third year Honours students, and Majors with equivalent

standing, may with permission of the Department be admitted to these seminars.

Political Science 47.400

Topics in Canadian Government and Politics

A seminar on selected topics in Canadian Government and Politics. The sections for 1975-76 are as follows:

(a) Canadian Constitutionalism. A seminar on the sources, development and political environment of the Canadian constitution; the role of the courts and other institutions in its elaboration; and its function as an instrument channelling and restraining activities by various levels of government. Among the topics to be dealt with are the rights of the citizen, the status of the disadvantaged and minority groups, the amendment process and the role of such bodies as federal-provincial conferences.

(Note: Students primarily interested in the legal problems of the Canadian Constitution and federalism may wish to register in Law 51.450 as a Political Science credit.)

(b) Political Economy of Canada. An examination of selected issues in Canadian political economy including the role of the state in the Canadian economy, the political aspects of foreign ownership, and economic structure and political change.

(c) Canadian Political Behaviour. An examination of the determinants of political behaviour in Canada; for example, socialization, attitudes, personality, and social structure.

Prerequisite: Political Science 47.200

Day and Evening divisions: Seminar three hours a week.

D. Kwavnick, M.A. Molot, J.H. Pammett, C.J. Winn

Summer 1975, Evening division: Seminar five hours a week.

J.H. Pammett

Political Science 47.401★

Policy Making in Canada

A seminar on the processes and structures of public policy making in Canada, including the role of: the Cabinet, Economic Council, Science Council, planning, programming and budgeting, royal commissions, task forces, private consulting firms, and academics.

Prerequisites: Political Science 47.200 and 47.340, or permission of the instructor.

Day division, First term: Seminar three hours a week.

G.B. Doern

Political Science 47.402★

Policy Seminar

A seminar on policy making and implementation in a substantive area, that will vary each year.

Prerequisite: Political Science 47.401★, or permission of the instructor.

Day division, Second term: Seminar three hours a week.

R.J. Van Loon

Political Science 47.403★

Politics and the Media

A seminar on the role of the mass media in the Canadian

political system.

Prerequisite: Political Science 47.200, or permission of the instructor.

Day division, First term: Seminar three hours a week.

C.J. Winn

Political Science 47.404★

Interest Groups in Canadian Politics

A seminar on the role of organized groups in the political process with special reference to Canada.

Prerequisite: Political Science 47.200, or permission of the instructor.

Day division, Second term: Seminar three hours a week.

K.Z. Paltiel

Political Science 47.405

Federalism

A seminar on Canadian federalism interpreted in the light of various theoretical approaches and experience elsewhere, particularly in Australia, Germany, Switzerland and the United States.

Prerequisites: Political Science 47.100 and a further course in Canadian or comparative politics.

Not offered 1975-76.

Political Science 47.406★

Legislative Process in Canada

A seminar on the role of Parliament and of the individual M.P. in terms of policy making, representation and the passage of legislation.

Prerequisite: Political Science 47.200, or permission of the instructor.

Day division, Second term: Seminar three hours a week.

R.J. Jackson

Political Science 47.409

French Canadian Politics

A seminar on the politics and institutions of French Canada including social and political philosophy and nationalism.

Prerequisites: Political Science 47.200 and permission of the instructor.

Not offered 1975-76.

Political Science 47.410

Political Process in Developed Democracies

A seminar on the relationship between state and society in Western Europe and North America. Particular emphasis is given to the study of changes in social structure, their implications for consensus or conflict, the role of parties and interest groups, and public policy.

Prerequisite: Political Science 47.321, or permission of the instructor.

Day division: Seminar three hours a week.

L.V. Panitch

Political Science 47.415★

Eastern European Politics

A comparative examination of political institutions and processes in the Communist states of Eastern Europe.

Prerequisites: Political Science 47.215 and 47.320, or permission of the instructor.

Not offered 1975-76.

Political Science 47.420★

President and Congress in the United States

An examination of domestic policy making in the United States in relation to Congress and the Presidency.

Prerequisites: Political Science 47.100 and 47.321, or permission of the instructor.

Not offered 1975-76.

Political Science 47.421★

Parties and Pressure Groups in the United States

An examination of the two-party system in the United States, including the decentralized nature of the parties, minor parties, and the role of parties and pressure groups in the legislative process.

Prerequisites: Political Science 47.100 and 47.321, or permission of the instructor.

F. Kirk

Political Science 47.422★

American Constitutionalism

A seminar on the American Constitution as a legal and political instrument, the role of the Supreme Court in the governmental process, and the extra-legal sources of constitutional law.

Prerequisites: Political Science 47.100 and 47.321, or permission of the instructor.

Not offered 1975-76.

Political Science 47.430

Modern Political Thought

Selected thinkers and concepts of the nineteenth and twentieth centuries. Special emphasis will be given to the problems of political obligations and political dissent.

Prerequisite: Political Science 47.230, or permission of the instructor.

Day division: Seminar three hours a week.

P.L. Rosen, R.A. Whitaker

Political Science 47.431★

Marxist Thought

An examination of Marxism with special emphasis on Marx and Engels, and including writings from all periods of their work.

Prerequisite: Political Science 47.230, 47.231, 47.232 or 47.333, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

R. Selucky

Political Science 47.432★

Contemporary Communist Thought

An examination of Leninism and later aspects of Communist thought.

Prerequisite: Political Science 47.431★.

Day division, Second term: Lectures and discussion

three hours a week.
R. Selucky

Political Science 47.435

The Conflict of Ideas in Contemporary Society

A seminar on the currents of conflicting political thought in the present day. Special attention will be given to the crises of authority and selected forms of contemporary radicalism and conservatism.

Prerequisite: Permission of the instructor.

Not offered 1975-76.

Political Science 47.446

Theories of Public Administration

A seminar on theories of public administration including comparative theories.

Prerequisite: Political Science 47.340.

Evening division: Seminar three hours a week.

D.C. Rowat

Political Science 47.460

Analysis of International Politics

Problems involved in research on key issues in theory and policy in international politics, including literature review and an assessment of alternative research strategies.

Prerequisite: Political Science 47.260 or permission of the instructor.

Day division: Seminar three hours a week.

H. von Riekhoff

Summer 1975, Evening division: Seminar five hours a week.

B.W. Tomlin

Political Science 47.461★

Soviet Foreign Policy

An examination of the foreign policy of the Soviet Union since 1917, with special emphasis on trends since the Second World War.

Prerequisites: Political Science 47.260 and 47.320, or permission of the instructor.

Not offered 1975-76.

Political Science 47.462★

International Communist Movement

An examination of the International Communist Movement since 1917, with special emphasis on relations among the Communist states.

Prerequisites: Political Science 47.260 and 47.320, or permission of the instructor.

Not offered 1975-76.

Political Science 47.466★

American Foreign Policy

An examination of issues and trends in American foreign relations since the Second World War.

Prerequisite: Political Science 47.260.

Day division, First term: Seminar three hours a week.

J. Alexander

Political Science 47.470

Political Research Design and Data Analysis

The framing of quantitative research problems, including hypothesis formation and testing, application of models, sampling, scaling techniques, and computer and data processing techniques. Specific application will be made to such fields as voting, legislative, judicial and administrative behaviour.

Prerequisite: Permission of the instructor.

Evening division: Seminar three hours a week.

N.H. Chi

Political Science 47.482★

International Politics of Africa

The interactions of African states within the African sub-system and with other actors in the international system.

Prerequisite: Political Science 47.260 or 47.310 or permission of the instructor.

Day division, First term: Seminar three hours a week.

D.G. Anglin

Political Science 47.483★

Foreign Policies of Major East Asian Powers

The foreign policies of the East Asian powers, with special attention to China and Japan; an analysis of the domestic sources of policy, capabilities, interests, decision-making processes and foreign relations.

Prerequisite: Political Science 47.260 or 47.312 or permission of the instructor.

Day division, Second term: Seminar three hours a week.

R.E. Bedeski

Political Science 47.490

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the Chairman of the Department and agreement of the instructor.

Day division: Tutorial hours arranged.

Political Science 47.491★

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the Chairman of the Department and agreement of the instructor.

Day division, First term: Tutorial hours arranged.

Political Science 47.492★

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the Chairman of the Department and agreement of the instructor.

Day division, Second term: Tutorial hours arranged.

Political Science 47.498

Honours Graduation Essay

Day division: Tutorial hours arranged.

Graduate Courses

Political Science

- 47.500 ★ Canadian Local Government and Politics
- 47.501 ★ Provincial Government and Politics
- 47.502 ★ Comparative Local Government
- 47.504 ★ Urban Politics
- 47.505 Comparative Government
- 47.506 ★ Problems of Canadian Government I
- 47.507 ★ Problems of Canadian Government II
- 47.510 The Political Process in Canada
- 47.514 ★ Comparative Communist Politics, Theory and Practice
- 47.515 ★ Comparative Communist Politics, Selected Aspects
- 47.516 ★ Selected Problems in Soviet Politics
- 47.517 ★ Selected Problems in African Politics
- 47.520 ★ Nationalism
- 47.521 ★ Multiculturalism
- 47.525 Problems of American Government
- 47.530 Political Theory
- 47.532 ★ Selected Topics in Political Theory
- 47.533 ★ Selected Topics in Political Theory
- 47.535 The Canadian and American Political Traditions
- 47.540 Problems in Canadian Public Administration
- 47.544 ★ Public Administration in Developed Western Countries
- 47.545 ★ Public Administration in Developing Countries
- 47.547 Decision Theories and Policy Studies
- 47.550 Problems in Western European Politics
- 47.560 Theory and Research in International Politics
- 47.561 ★ Canadian Foreign Policy
- 47.570 Advanced Research Methods
- 47.581 ★ Foreign Policies of African States
- 47.585 ★ Foreign Policy Analysis
- 47.586 Military Strategy and Defence Policy
- 47.587 ★ Problems in International Organization
- 47.589 ★ Advanced International Relations Theory

Related Courses

Subject to *prior* approval by the supervisor of the Major or Honours program, a student may use one course in a related discipline as a Political Science credit. This permission will be granted only if the content of the transfer course is very closely related to Political Science and if the Political Science Department does not itself offer a comparable course.

Courses Offered at St. Patrick's College

Political Science

- 01.110 Introduction to Political Science
- 01.255 Canadian Government and Politics
- 01.265 Theory of Law and Politics
- 01.285 Contemporary Political Problems
- 01.350 Public Administration
- 01.366 ★ Contemporary Analytic Theory
- 01.370 International Relations

- 01.391 ★ Special Topic Seminar
- 01.395 ★ Tutorial
- 01.396 ★ Tutorial

Courses Planned for Summer School and Evening Division, 1975-79

Summer 1975

- 47.100, 47.200, 47.215, 47.260, 47.270, 47.310, 47.322, 47.333, 47.340, 47.400, 47.460.

The introductory course is offered in both Day and Evening sections in the summer, as well as the regular academic year. In the winter session Political Science 47.200, 47.230, 47.260, 47.270 and 47.340, are offered in Day and Evening sections. It is expected that 300-level courses will be offered in the Evening at least once in a three-year period, and that five 400-level seminars will be offered in the Evening during the calendar year. Specific course offerings will depend on faculty availability and student interest and demand.

Department of Psychology

Officers of Instruction

Chairperson

T.N. Tombaugh

Chairperson, Graduate Committee

H. Anisman

Chairperson, Undergraduate Committee

D.K. Bernhardt

Professors

R.M. Knights

M.E. Marshall

P.D. McCormack

T.J. Ryan

L.H. Strickland

F.R. Wake (*St. Patrick's College*)

R.A. Wendt

Associate Professors

J.C. Barefoot

J.F. Campbell (*St. Patrick's College*)

W.L. Croll

M.N. Donald

P.A. Fried

R.D. Hoge

A.B. Laver

D.C. McIntyre

A. Moffitt

B. Pappas

J. Partington

W.M. Petrusic

H.M. Simpson

T.N. Tombaugh

W.E. Walther (*St. Patrick's College*)

W.G. Webster

D.W. Zimmerman

Assistant Professors

D.A. Andrews (*St. Patrick's College*)

H. Anisman

L.R. Barnett (*St. Patrick's College*)

D.K. Bernhardt

E.J. Burwell

R.F. Dillon

H.B. Ferguson

R.F. Hoffman

W.D. Jones

J.B. Kelly

N. Spanos

J. Tombaugh

R.B. Wells

Pre-School Director

M. Barnett

General Information

The Department of Psychology offers three different undergraduate programs, two in the Faculty of Arts and one in the Faculty of Science. The programs in the Faculty of Arts are the Major program in Psychology (a minimum of fifteen full-course credits after Senior Matriculation) and the Honours program in Psychology (a minimum of twenty full-course credits after Senior Matriculation). In the Faculty of Science the Department offers an Honours program in Psychology.

The Honours programs are designed for students intending to do graduate work in Psychology. It has been found that students who do not have at least a B average have little chance of being admitted to graduate schools in Psychology and have difficulty completing the Honours thesis.

Psychology 49.100 is required of all students wishing to take further courses in the Department. The following are basic "core" courses: Psychology 49.200★, 49.205★ (or 49.305), 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, and 49.300★ (or 49.301★ or 49.302★). In most cases there are more specialized "branching" courses following upon these basic courses.

There is little distinction made between Second and Third year courses in the Department. (Many 200-level courses are taken by students in the Third year and some 300-level courses are taken in the Second.)

The Department requires students in the B.A. programs to take courses in at least three departments not including Psychology. In the credits counted toward the degree the student may not offer more than seven (including Psychology 49.100) below the Second year level, in the Major program or eight in the Honours program.

Students registered in the Psychology program on the main campus may include courses offered at St. Patrick's College although the basic core courses must be taken from the main campus department. (For students who are transferring, core course equivalents are listed in the St. Patrick's College section of the calendar.) Care should be taken in choosing courses at St. Patrick's College that they do not overlap with courses taken on the main campus.

Major or Honours students in the B.A. program in Psychology may if they wish offer Computing Science 95.101★ (p.382) as one of their optional half credits in Psychology (but not to replace any of the specified Psychology courses). Students wishing to take advantage of this option should notify the Psychology Department undergraduate office on the appropriate form within two months of registration in the course.

Major Program

This alternative is intended for the student who is not planning a career as a psychologist, but who wishes a liberal arts education with several courses in Psychology. The minimum requirement for a concentration in Psychology is six course credits.

Students who decide to train for a career as a psychologist are advised to transfer to the Honours program not later than the end of the Second year. Students who are considering this possibility should choose courses that are required for Honours Psychology students in the Second year.

The undergraduate courses in Psychology have been designed to allow students a wide choice of subject areas as well as the opportunity to investigate particular content areas in depth.

The departmental requirements for a Major in Psychology are:

1. Psychology 49.100;
2. five of Psychology 49.200 ★, 49.205 ★, 49.210 ★, 49.220 ★, 49.250 ★, 49.260 ★, 49.270 ★, 49.300 ★, 49.301 ★, or 49.302 ★ (only one of the latter three courses may be credited towards this requirement);
3. two and one-half additional course credits in Psychology.

Note: Psychology 49.305 may be substituted for 49.205 ★ in 2, in which case only two additional course credits in Psychology are required in 3.

The departmental requirements for a Major program combining Psychology with another discipline are the same as for a Major, with the exception that, under 3 above, only one and one-half additional course credits in Psychology are required.

A student may not offer more than seven full course credits in Psychology in a Major B.A. program.

Honours students who are considering reverting to the Major program should not include more than seven Psychology credits in the first three years.

Honours Programs

To teach Psychology at a university, to practise Psychology as a profession, or to conduct independent psychological research, a graduate degree (usually the Ph.D.) is the customary requirement. Several provinces,

including Ontario, and many states have laws which require, in effect, that an individual representing himself as a psychologist must have received a Ph.D. in psychological studies.

The Honours programs in Psychology are designed to give students who are preparing for graduate studies in Psychology an opportunity to learn and evaluate the foundations of the science. They provide adequate preparation for graduate studies leading to a career in Psychology, whatever the student's area of interest.

A student in a B.A. program with Honours in Psychology must obtain each year the approval of the Department of Psychology for the courses he has selected (including optional courses) before he may complete registration.

With the permission of the Honours adviser, Department of Psychology, a student registered in an Honours program in Psychology may take six courses in any year, if he has the required minimum grade standing.

B.A. with Honours in Psychology

The candidate for a B.A. with Honours in Psychology must offer standing at the First year level in the Faculty of Arts and nine credits for Psychology courses, with remaining courses optional. (A maximum of twelve credits in Psychology may be offered for the degree of B.A. with Honours in Psychology). The nine Psychology course credits must include:

1. Psychology 49.100;
2. All of Psychology 49.210 ★, 49.220 ★, 49.250 ★, 49.260 ★ and 49.270 ★;
3. One of Psychology 49.300 ★, 49.301 ★, 49.302 ★ or 49.303 ★;
4. Psychology 49.305;
5. Psychology 49.200 ★, and one of 49.201 ★, 49.202 ★, 49.203 ★ or 49.204 ★;
6. One of the following sequences: Psychology 49.315 ★ and 49.316 ★, 49.325, 49.355 ★ and 49.356 ★, 49.375 ★ and 49.376 ★.
7. Psychology 49.498;
8. One additional course credit in Psychology.

Recommended sequence for B.A. Honours

First Year

Psychology 49.100.

Second Year

1. Psychology 49.200 ★;
2. Four of Psychology 49.210 ★, 49.220 ★, 49.250 ★, 49.260 ★, 49.270 ★;
3. One half credit in Psychology (either the remaining core course from 2 or 1 of 49.201 ★, 49.202 ★, or 49.203).

Third Year

1. Psychology 49.305;
2. One of the following sequences 49.315 ★ and 49.316 ★, 49.325, 49.355 ★ and 49.356 ★, or 49.375 ★ and 49.376 ★;
3. One of the following 49.300 ★, 49.301 ★, 49.302 ★, or 49.303 ★;
4. One half credit in Psychology (either one of 49.201 ★, 49.202 ★, 49.203 ★ or 49.204 ★ or remaining core course).

If the student is specializing in Physiological Psychology then 49.204 ★ must be taken in Third year along with Psychology 49.325. Otherwise the student should consider taking one of Psychology 49.201 ★, 49.202 ★ or 49.203 ★ in Second year.

Fourth Year

1. Psychology 49.498;
2. One additional credit in Psychology.

The remaining eleven credits may be taken in Psychology or other disciplines in the Faculties of Science or Arts provided that:

1. The total number of Psychology credits is not more than twelve;
2. The total number of credits below the 200 level is not more than eight;
3. There are credits in at least three disciplines in addition to Psychology.

Notes:

1. A student registered in the four year B.A. program with Honours in Psychology may, on request, graduate at the end of the Third year of studies, as a B.A. with a Major in Psychology, provided the requirements for graduation in the Three year Major program (including the requirement of a maximum of seven credits in Psychology) are met.

2. Optional courses may be in Psychology, or any other subject.

3. Students who transfer into the Fourth year of the Honours Program who do not have credits in statistics and experimental psychology will not be able to complete the requirements for the degree in one year.

Combined Honours

All students in the Combined Honours program must present an Honours thesis.

The Psychology requirements in Combined Honours programs include seven credits in Psychology when combined with Sociology, Philosophy, Mathematics, Linguistics or Economics and eight credits (including Psychology 49.498) in Psychology when combined with any other discipline. In all cases requirement 8 of the B.A. Honours requirements (one additional course credit in Psychology) is removed (except when the thesis is completed in Sociology as outlined below).

For combined Honours with Philosophy, Linguistics or Economics, if the thesis is completed in Psychology only two credits are required from 2 and 3 of the B.A. Honours requirements. If the thesis is completed in Economics, 2 and 3 are required.

For Combined Honours with Sociology, if the thesis is completed in Psychology, 49.210 ★ and one and a half additional credits are required from 2 and 3 of the B.A. Honours requirements. If the thesis is completed in Sociology then Sociology 53.370 will replace Psychology 49.305 and 2, 3 and 8 will be required in Psychology.

B.Sc. with Honours in Psychology

First Year

1. Mathematics 69.100 or 69.101;
2. One of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105;
3. Psychology 49.100 as the arts elective;
4. Two additional credits from Science or Arts.

Required courses beyond First year, and the sequence in which it is strongly suggested they be taken, are as follows:

Second Year

1. Psychology 49.200 ★, 49.220 ★, 49.250 ★ and 49.270 ★;

2. Mathematics 69.250 (or 69.217 ★ and either 69.258 ★ or 69.257 ★ for students planning to take further courses in Mathematics);

3. A course in the humanities or social sciences other than Psychology;

4. Optional course.

Note: Students who wish to substitute Psychology 49.305 in 2 must offer in 4 a course above the First year level in Biology, Mathematics, Chemistry or Physics chosen with the approval of the Department of Psychology.

Third Year

1. One Honours sequence credit (Psychology 49.325, 49.355 ★ and 49.356 ★, or 49.375 ★ and 49.376 ★);

2. One of Psychology 49.201 ★, 49.202 ★ and 49.204 ★ and one of Psychology 49.300 ★—49.303 ★;

3. One optional credit in Psychology;

4. A course credit in the humanities or social sciences other than Psychology;

5. A course credit above the First year level in Biology, Mathematics, Chemistry or Physics chosen with the approval of the Department of Psychology.

Fourth Year

1. Psychology 49.498;

2. One credit in Psychology chosen from the following Science continuation courses: Psychology 49.221 ★, 49.222 ★, 49.251 ★, 49.252 ★, 49.255 ★, 49.271 ★, 49.321 ★, 49.330 ★, 49.331 ★, 49.332 ★, 49.380 ★;

3. One optional credit in Psychology;

4. One course credit above the First year level in Biology, Mathematics, Chemistry or Physics;

5. One optional credit.

Graduate Program

The Department of Psychology offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

St Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered

Note:

1. ★ indicates a half course.

2. Many of the branching courses have limited enrolment.

Psychology 49.100

Introductory Psychology

The course surveys the current scope of psychology today. The biological basis of behaviour, comparative psychology, perception and learning provide the foundations for understanding human behaviour. Other areas dealt with are developmental psychology (child), motivation, personality, psychological testing, abnormal behaviour, therapy and social psychology. The course involves projects, short essays and exercises, discussion groups and frequent exams. There is also opportunity to assist in research projects as subjects.

Day and Evening divisions: Four hours a week.

Psychology 49.200 ★

Introduction to Psychological Research

An introduction to the various research methodologies employed within contemporary psychology. Topics covered may include experimental, observational, case study and archival techniques.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.201 ★

Research Methods in Psychology of Learning

A survey of methodological issues in the psychology of learning. The focus will be on either human (section B) or animal (section A) learning. Independent projects will be assigned.

Prerequisites: Psychology 49.200 ★ and 49.270 ★. Open only to Honours students in Psychology. Limited enrolment.

Day division: Lecture three hours, laboratory three hours a week.

Psychology 49.202 ★

Research Methods in Child Psychology

A survey of methodological issues in child psychology. Independent projects will be assigned.

Prerequisites: Psychology 49.200 ★ and 49.250 ★. Open only to Honours students in Psychology. Limited enrolment.

ment.

Day division: Laboratory a minimum of six hours a week.

Psychology 49.203 ★

Research Methods in Social Psychology

A survey of methodological issues within social psychology. Independent projects will be assigned.

Prerequisites: Psychology 49.200 ★ and 49.210 ★. Open only to Honours students in Psychology. Limited enrolment.

Day division: Lectures two hours a week, laboratory three hours a week.

Psychology 49.204 ★

Research Methods in Physiological Psychology

A survey of methodological issues in physiological psychology. Emphasis will be upon the study of experimental paradigms commonly used in physiological psychology.

Prerequisites: Psychology 49.200 ★ and 49.220 ★. Intended for Honours students in Psychology. (Others must have permission of the instructor.) Psychology 49.325 must be taken concurrently with Psychology 49.204 ★. Limited enrolment.

Day division: Laboratory three hours a week, lecture one hour a week.

Psychology 49.205 ★

Introduction to Psychological Statistics

Basic properties of descriptive statistics, the logic involved in the traditional hypothesis testing approach, and a variety of logical fallacies utilized in generating incorrect conclusions will be examined. In particular, students will be trained to recognize distorted results and conclusions unwarranted on the basis of empirical results. In addition, the impact of traditional hypothesis testing upon psychological research will be examined in relation to its limitations and misuses. The emphasis of the course will be upon logic and evaluation rather than techniques per se. (Precludes additional credits for Sociology 53.205 ★; Economics 01.220 and Sociology 08.207 ★.)

Prerequisite: Psychology 49.100.

Day division: Lectures three hours a week.

Psychology 49.210 ★

Introduction to Social Psychology

Introduction to contemporary theory and research in social psychology. Areas covered include attitude structure and change, small groups and social learning. (Psychology students who have successfully completed Psychology 49.210 ★ may not subsequently enrol in Sociology 53.210 for credit.)

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.211 ★

Social Problems

An analysis of one or more social movements from the point of view of social psychology. The problems studied will vary from year to year and might include such topics as invasion of privacy, the challenge of leisure, the quality of urban life and work satisfaction.

Prerequisite: Psychology 49.210 ★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.212 ★

Attitudes

Theory and research in attitude structure and change, attitude development and the relationships between attitudes and behaviour. Some problems in attitude measurement will be considered.

Prerequisite: Psychology 49.210 ★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.213 ★

Small Groups

A survey of small group theory and research. Areas covered will include leadership and group problem solving.

Prerequisite: Psychology 49.210 ★. Limited enrolment.

Not offered 1975-76.

Psychology 49.214 ★

Social Perception

Examination of theory and research related to determinants, consequences and models of a person's perception of people and other socially relevant objects.

Prerequisite: Psychology 49.210 ★. Limited enrolment.

Not offered 1975-76.

Psychology 49.220 ★

Biological Foundations of Behaviour

A general introduction to the biological bases of behaviour with particular reference to biological mechanisms associated with sensory and perceptual processes, motivation, emotion, learning and cognition.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.221 ★

Comparative Psychology

An introduction to the development of behavioural capacity from unicellular organisms to man.

Prerequisite: Psychology 49.220 ★.

Day division: Lecture three hours a week.

Psychology 49.222 ★

Sensory Psychology

The physiological basis of sensation. Topics will include sensory mechanisms, neuropsychological basis of perception and psychological phenomena encountered in the various senses.

Prerequisite: Psychology 49.220 ★.

Day division: Lecture three hours a week.

Psychology 49.250 ★

Foundations of Developmental Psychology

Basic principles of developmental psychology with a concentration on theories and methods. Emphasis is on the psychology of childhood and adolescence.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.251 ★

Psychology of Early Childhood

Development of the child from birth through the preschool years of life; effect of early experience on later behaviour.

Prerequisite: Psychology 49.250 ★. Limited enrolment.

Day and Evening divisions: Lecture/seminar three hours a week.

Psychology 49.252 ★

Psychology of Middle Childhood

Development of the child during the elementary school years.

Prerequisite: Psychology 49.250 ★. Limited enrolment.

Day and Evening divisions: Lecture/seminar three hours a week.

Psychology 49.253 ★

Psychology of Adolescence

Psychological growth and development from puberty to maturity.

Prerequisite: Psychology 49.250 ★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.255 ★

Exceptional Children

Selected topics concerning exceptional children such as mentally retarded, brain damaged, physically handicapped, disturbed and gifted children.

Note: Psychology 49.255 ★ and 04.367 ★ may not both be offered for credit.

Prerequisite: Psychology 49.250 ★.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.260 ★

Introduction to the Study of Personality

An introduction to the study of personality. Consideration of problems, methods and theories.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.261 ★

Psychoanalytic Theories

Origin and evaluation of psychoanalytic theories with an emphasis on Freud and Jung.

Prerequisite: Psychology 49.250 ★ or 49.260 ★. Limited enrolment.

Evening division: Lecture/seminar three hours a week.

Psychology 49.262 ★

Self Theories

An evaluation of the assumptive bases and research evidence relating to the positions of Rogers, Maslow and others.

Prerequisite: Psychology 49.260 ★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.263 ★

Investigations in Personality

Selected topics in the area of personality and personality theory.

Prerequisite: Psychology 49.260 ★. Limited enrolment.

Not offered 1975-76.

Psychology 49.264 ★

Abnormal Psychology

History of the concept of behavioural abnormality. Theory and selected research dealing with the nature and etiology of behavioural abnormality.

Prerequisite: Psychology 49.250 ★ or 49.260 ★.

Day division: Lecture three hours a week.

Psychology 49.270 ★

Foundations of Learning

Contemporary approaches to the identification of conditions for learning and retention in men and animals, including a survey of theories, issues, methods and findings.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.271 ★

Motivation and Emotion

A discussion of current concepts derived from the experimental study of mechanisms energizing behaviour. Emphasis will be placed upon biological-organismic constraints upon behaviour, the interplay between cognitive and biological variables in motivation and emotion and upon recent challenges to "traditional" behaviour theory.

Prerequisite: Psychology 49.270 ★. Limited enrolment.

Not offered 1975-76.

Psychology 49.300 ★

Origins of Modern Psychology

The idea of science and its influence on man's conception of himself from Copernicus to Darwin. Scientific and humanistic influences on the emergence of psychology as an independent discipline in the late nineteenth century.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.301 ★

Precursors of Psychology

Ideas that shaped the emergence in the modern era of psychology as an independent discipline, as evidenced in man's speculations on his nature and his relations to

the universe. Mind and body in ancient Egypt, Greece and Rome. Arabic influences and the Middle ages. Elizabethan psychology. The case for a science of man. Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.302 ★

Patterns of Twentieth Century Psychology

Systems and theories that have determined the course of experimental psychology since 1890. The collapse of structuralism and the rise of functional, Gestalt, and connectionist systems, and of conditioning. The behaviourist revolution, and the major learning theories of the mid-twentieth century.

Prerequisite: Psychology 49.270 ★.

Day division: Lecture three hours a week.

Psychology 49.303 ★

Observation, Description and Explanation in Psychology

Problems of communication, concept formation, and exploration in bio-social science will be discussed. The interplay of facts, methods, models, theories and the human values which these serve will also be explored. Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.305

Psychological Statistics and Design

A solid foundation in descriptive techniques, probability theory, parameter estimation, hypothesis testing, linear regression, and correlation will be developed. Basic models and their appropriateness in answering different types of research questions will be emphasized. Computational procedures will be given, but major emphasis will be placed upon the decision processes involved in determining which statistical techniques can be applied in relation to different classes of experimental question. (Successful completion of Psychology 49.305 precludes subsequent enrolment for credit in the following courses: 49.205 ★, Sociology 53.205 ★, Economics 01.220, Sociology 08.207 ★, and Psychology 04.208). Students may not offer both Psychology 49.305 and Sociology 53.370 for credit.

Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.321 ★

Perception

A consideration of data and theory concerning perceptual processes. Such topics as psychophysical methodology, perception of form and space, and perceptual learning will be discussed.

Prerequisite: Psychology 49.100.

Evening division: Lecture three hours a week.

Psychology 49.330 ★

Principles of Psychological Testing

What psychological tests are, and how they are developed. Their usefulness and limitations as aids in making

decisions about people. The application of testing principles to problems of experimental psychology. The course is designed for those who work with, or plan to work with psychological tests in any setting. Emphasis is on the logic of testing rather than on particular tests. Prerequisite: Psychology 49.100; training in descriptive statistics is recommended. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.331 ★

Human Differences

The meaning and worth of the evidence as to human differences derived from psychological tests results. Individual differences in intelligence, achievement, aptitudes, and personality. The problems of interpreting measured differences associated with race, sex, age and class. The course will examine on the bases of psychometric evidence two contrasting hypotheses, that human potentialities are truly equal and that differences are basic and ineradicable.

Prerequisite: Psychology 49.100, Psychology 49.330 ★ is recommended. Limited enrolment.

Day division: Lecture three hours a week.

Psychology 49.332 ★

Problems in Test Construction

Selected problems in the design and analysis of psychological tests with emphasis on statistical approaches to reliability and validity.

Prerequisites: Psychology 49.205 ★ and 49.330 ★. Limited enrolment.

Not offered 1975-76.

Psychology 49.340

Personnel Psychology

A review of research and theory within the areas of organizational psychology, psychological testing, and human factors engineering. While the emphasis in the course is on basic theory and research, efforts are made to relate the material to problems arising within industrial, governmental and educational organizations.

Prerequisite: Psychology 49.100.

Evening division: Lecture three hours a week.

Psychology 49.361 ★

Psychology of Women

An examination of the literature on the psychology of women. Topics to be considered will include: theories of female development, the biological life cycle, sex differences in ability and personality, sex role learning, feminine social problems.

Prerequisites: Third year and at least one of Psychology 49.210 ★, 49.250 ★ or 49.260 ★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.371 ★

Behaviour Modification in Education

Introduction to basic procedures and methods of operant conditioning as they apply to the classroom setting. This course is primarily designed for practicing teachers, and

a classroom project will be required.

Prerequisite: Psychology 49.100. Limited enrolment.
Evening division: Seminar three hours a week.

Psychology 49.380★, 49.382★, 49.384★, 49.386★
Special Topics in Psychology

The topics of this course, to be offered as demand warrants, will vary from year to year and will be announced well in advance of the period of registration. In 1975-76 the following will probably be offered as special topics courses: (1) Psychopharmacology (prerequisites: Third or Fourth year and Psychology 49.220★.) (2) Study of Play (prerequisites: Psychology 49.250★ and either 49.210★ or 49.260★). (3) Psychology of Human Consciousness (prerequisites: Third or Fourth year and one of Psychology 49.200★, 49.300★, 49.301★, 49.302★, 49.303★).

Note: In three of the following four Honours seminar sequences the first half course is a prerequisite for the second. Generally the two parts must be taken in the same year to meet the Honours requirement. The exception is Psychology 49.325 which is a full course. Psychology 49.325 must be taken in conjunction with 49.204★.

Psychology 49.315★, 49.316★

Social Psychology II (History and Contemporary Theory)

A survey in depth of early theoretical and research efforts in experimental social psychology. Attention is directed to the disappearance, reappearance, or continued growth of interest in these areas. Their impact on the various contemporary social psychological theories is considered.

Prerequisite: Psychology 49.210★. Open to Third and Fourth year Honours students in Psychology.
Day division: Seminar three hours a week.

Psychology 49.325

Physiological Psychology

A detailed consideration of physiological approaches to the study of behaviour.

Prerequisites: Psychology 49.200★, either Psychology 49.220★ or Biology 61.335, and concurrent enrolment in Psychology 49.204★. Intended for Honours students in at least the Third year.

Lecture three hours per week.

Psychology 49.355★, 49.356★

Experimental Child Psychology

Seminar on various theories of human development and related research. Students will be required to evaluate and replicate research methods used in selected studies.

Prerequisites: Psychology 49.250★ and 49.202★ (may be taken concurrently). Usually open to Third and Fourth year Honours students in Psychology.

Day division: Seminar three hours a week.

Psychology 49.375★, 49.376★

Learning II (Empirical Foundations of Learning)

Specification of empirical variables relevant to classical and simple instrumental conditioning situations. Empirical relations between these variables and theoretical structures elaborated in an attempt to account for their derivation. Capacity of such theories to generate hypotheses about more complex learning phenomena.

Prerequisite: Psychology 49.270★. Usually open to Third and Fourth year Honours students in Psychology.

Day division: Seminar three hours a week.

Psychology 49.490★, 49.492★, 49.494★

Independent Study

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to Third and Fourth year students only. Normally a student may not offer more than one full credit of independent study in his total program.

Prerequisite: Permission of the instructor and Honours adviser.

Psychology 49.498

Thesis for Honours in Psychology

Candidates for Honours in Psychology will present during the Fourth year, a thesis based on a controlled empirical investigation, which may be experimental, survey, case study, or archival in nature.

Note: Registration in Psychology 49.498 during the summer is only open to students who have registered in and attended the course during the fall and winter terms.

Prerequisites: Fourth year and Psychology 49.305, 49.200★ and one of 49.201★-49.204★ or equivalent.

Seminar and laboratory a minimum of four hours a week.

Courses Offered at St. Patrick's College

Note: The following may not be used to meet the core course requirements for Major or Honours Psychology students registered on the main campus.

Psychology

- 04.100 Introductory Psychology
- 04.208 Foundations of Psychological Research
- 04.210★ Social Psychology
- 04.218★ Assumptions of Social Psychology
- 04.228 The Biological Basis of Behaviour
- 04.258 Child Psychology
- 04.268 The Person and His Behaviour: Theories of Human Conduct and Cognition
- 04.308 The Analysis of Individual Behaviour
- 04.354★ Adulthood
- 04.356★ Development of Language
- 04.357★ Old Age
- 04.358 Psychology of Adolescence
- 04.364★ Abnormal Behaviour
- 04.365★ Criminal Behaviour
- 04.366★ Addiction
- 04.367★ Behaviour Disorders of Childhood

04.378 Advanced General Psychology
04.391 ★ Practicum in Community Psychology
04.392 ★ Practicum in Community Psychology

Courses Planned for Summer School and Evening Division, 1975-79

In both winter session Evening division, and summer session the following course will be offered: 49.100.

In both winter session Evening division and summer session, six of the following eight courses will be offered: 49.200 ★, 49.210 ★, 49.220 ★, 49.250 ★, 49.260 ★, 49.264 ★, 49.270 ★, 49.300 ★.

In winter session Evening division and summer session, at least one course from each of the three following groupings of courses will be offered (courses will be rotated on a two-year basis):

1. 49.212 ★, 49.213 ★, 49.214 ★, 49.261 ★, 49.262 ★, 49.263 ★.
2. 49.251 ★, 49.252 ★, 49.253 ★, 49.255 ★.
3. 49.221 ★, 49.222 ★, 49.321 ★, 49.371 ★.

School of Public Administration

For details of programs offered by the School see pp. 65-67.

Courses Offered

Public Administration 50.400

Public Administration Honours Seminar

A research seminar for Fourth year Honours Public Administration students only. The seminar will analyse, through individual and group research projects, a selected group of government programs and policies.

Day division: Three hours a week.

Public Administration 50.498

Honours Essay

Tutorial hours arranged.

Department of Religion

Officers of Instruction

Chairman

Stephen G. Wilson

Professors

David Chung (*St. Patrick's College*)

Robert E. Osborne

Lawrence M. Read

Associate Professors

Nalini Devdas

Antonio R. Gualtieri

Ronald L. Nettler

C. Peter Slater

Assistant Professors

John P. Dourley (*St. Patrick's College*)

Robert Polzin

Joseph G. Ramisch (*St. Patrick's College*)

Eugene Rothman

Stephen G. Wilson

Sessional Lecturers

Donald Boyd

Peredur Jones

Leonard Librande

A. Squire

B. Sundaresan

Stella Van Vlasselaer

General Information

The general purpose of courses offered in this Department is to promote a sensitive and intellectually mature understanding of the basic ideas and concerns of outstanding religious leaders and movements irrespective of whether these coincide or conflict with individual convictions. Religious writings are studied critically in an attempt to understand their meaning, to grapple with their problems, and to assess their significance both in their original cultural context and for our own situation.

Programs of Study

Students who elect Religion as their Major or Honours subject will consult their respective departmental adviser before registration each year.

Departmental program advisers are:

Honours, N. Devdas

Majors, R.M. Polzin

Courses Open to First Year Students

The following courses are open to First year students:
Religion 34.100, 34.120, 34.130, 34.201, 34.207, 34.240
Hebrew 34.015
Sanskrit 34.017

Main Areas of Study

Religion courses are divided into three main areas in the following manner:

1. Hebrew and Christian Scriptures: 34.120, 34.215, 34.218, 34.219★, 34.220, 34.221★, 34.223★, 34.225, 34.230, 34.337, 34.390, 34.392, 34.484★, 34.485★, 34.490, 34.492;

2. History of Religions: 34.100, 34.202, 34.203, 34.206, 34.207, 34.208, 34.214, 34.216, 34.217, 34.240, 34.270, 34.305, 34.320, 34.340, 34.345, 34.390, 34.392, 34.486★, 34.487★, 34.490, 34.492;

3. Philosophical-Theological: 34.130, 34.200, 34.201, 34.235, 34.260, 34.265, 34.280, 34.350, 34.370, 34.390, 34.488★, 34.489★, 34.490, 34.492.

Major Programs

Students majoring in Religion are required to take six courses: one course from the Hebrew/Christian Scriptures, two courses (in different religious traditions) from the History of Religions, and one course from the Theological/Philosophical area, plus two additional courses. One of these six courses must be at the 300 level or above. Courses should be selected in consultation with the Departmental majors adviser.

Combined Major Programs

A Major combining Religion with another subject must take at least four courses in Religion. Courses should be selected in consultation with the Departmental Majors adviser.

Honours Programs

Honours in Religion

The Honours program may be entered at the beginning of the First year or in later years or by transfer from the Major program.

Students enrolled in an Honours program must take ten courses in Religion: one course from Hebrew/Christian Scriptures, two courses (in different religious traditions) from the History of Religions, one course from the Theological/Philosophical area, Religion 34.490 and four other courses. Apart from Religion 34.490, at least one course must be at the 300 level or above.

Combined Honours in Philosophy and Religion

Philosophy: At least seven courses in Philosophy including an introductory course, one full course or the equivalent at the 400 or 500 level, Religion 34.260, if not chosen as a Religion option, and two or three of Religion 34.205, Philosophy 32.215, 32.305, 32.416 ★.

Religion: Requirements are the same as those listed below for Combined Honours Program.

Other Combined Honours Programs

Students enrolled in a Combined Honours program are required to take seven courses in Religion: one course from the Hebrew/Christian Scriptures, two courses (in different religious traditions) from the History of Religions, one course from the Theological/Philosophical area, Religion 34.492 and two other courses. Apart from Religion 34.492, at least one course must be at the 300 level or above.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Courses Offered

Note: Credits for Parallel Courses at St. Patrick's College
Credit can be allowed for only one of either: 34.100 or 09.100; 34.120 or 09.120; 34.203 or 09.203; 34.235 or 09.200; 34.280 or 09.250.

Religion 34.100

Introduction to World Religions

A survey of eastern religions: Hinduism, Buddhism, Taoism, Confucianism and Shinto. A survey of western religions: Zoroastrianism and Islam. Special attention will be paid to the theological and philosophical teachings of these religions.

Day and Evening divisions: Lecture-discussion periods three hours a week.

N. Devdas, A.R. Gualtieri, P. Jones, R. Nichols, L.M. Read, C.P. Slater

Religion 34.120

Origin and Early Development of Judaism and Christianity

A survey of Judaism and Christianity up to the second century A.D. The early history of Israel, the development of Hebrew literature, major concepts of Hebrew religion, the Torah, the great prophets; Jewish sects and literature in the Hellenistic and early Roman periods, including apocalyptic writings and the Dead Sea Scrolls; the early history of Christianity, the teachings of Jesus and the contribution of source and form criticism to the interpretation of the gospels, the life and teaching of Paul, the Johannine writings, the book of Revelation.

Day and Evening divisions: Lecture-discussion periods three hours a week.

R.E. Osborne, R. Polzin, S.G. Wilson

Religion 34.130

Religion and Modern Culture

An introduction to critical thinking about religious aspects of modern culture as expressed in literature, science and politics. Discussion will focus on contrasting interpretations of love, alienation, human freedom and related concepts. Reading will be from theistic and non-theistic authors such as Eliade, Tillich, Buber, T.S. Eliot, Graham Greene, P. Vallières and Margaret Atwood. Day and Evening divisions: Lecture-discussion periods three hours a week.

A.R. Gualtieri, L.M. Read, C.P. Slater

Religion 34.200

The Encounter of Science and Religion

The history of the encounter of science and religion from the seventeenth century to the present day. Scientific method and the approach of religion; scientific theories and theological doctrines; science and secular faith.

Evening division: Lecture-discussion periods three hours a week.

L.M. Read

Religion 34.201

Women in Religious Traditions

Feminine symbols and historical attitudes towards women in religion. Themes such as the following will be examined: traditional archetypes of women as earth mother, personified wisdom, temptress and virgin; the status of women in major religious traditions both western and eastern; the application of contemporary theologies of liberation to the feminist movement.

Day division: Lecture-discussion periods two hours a week.

Anne Squire

Religion 34.202

Early Hindu and Buddhist Thought

A study of some of the great texts (in translation) of Hinduism and Buddhism, including examination of their historical context, analysis of their central religious and philosophical ideas, exploration of their role in shaping and expressing the life of Hindus and Buddhists. The

class will usually be conducted in seminar form with emphasis on student discussion and reports.

Prerequisite: Religion 34.100, or permission of the Department.

Evening division: Lecture-discussion periods two hours a week.

N. Devdas

Religion 34.203

Religion and Art in India, China and Japan

A study of art as an expression of religious ideas and attitudes in India, China and Japan. Slides and films will be used to illustrate the relationship between religion and art in the Hindu and Buddhist traditions of India and in Chinese Buddhist, Taoist and Zen traditions. Some of the themes of the course are: religious expression in pre-historic art; myth and symbol in art forms; motifs underlying temple architecture and sculpture; the relationship between religious ideas and theories of art, iconography and the place of art in religious practices.

Prerequisite: Religion 34.100, or permission of the Department.

Not offered 1975-76.

Religion 34.206

Religions and Philosophies of East Asia

A study of the history and thought of Confucianism, Taoism, Buddhism in China and Japan, Shintoism and Shamanism with intensive readings in their classical and contemporary literature (in translation).

Prerequisite: Religion 34.100, or permission of the Department.

Not offered 1975-76.

Religion 34.207

Ancient Near Eastern and Graeco-Roman Religions

An investigation of selected writings in English translation from Egypt, Mesopotamia, and Israel. The writings studied will include narratives, myths, wisdom literature, hymns and poetry. Major themes of this literature include: the world of the gods; the creation of universe; friendship; the inevitability of death; how to succeed in business and life. This will be followed by a study of selected topics in Graeco-Roman religion, such as Homeric religion, chthonic cults, the Sophists, astrology, ruler cults, mystery religions and gnosticism.

Not offered 1975-76.

Religion 34.208

Islam

An introduction to the Islamic religious tradition. A broad historical survey of the entire tradition including a special study of a few of the most important areas. The subjects chosen for special study are the following ones: (1) the life and work of Muhammad; (2) aspects of the Islamic intellectual tradition: philosophy, theology and mysticism; (3) basic religious beliefs and practices of the Muslim peoples. The goal throughout will be to achieve an understanding of the ways in which Muslims have articulated, developed and dealt with the major issues

and problems in their religious life.

Prerequisite: Religion 34.100, or permission of the Department.

Day division: Lecture-discussion periods two hours a week.

Religion 34.214

Church, State and Society from the Reformation to the Present

Offered at St. Patrick's College as History 03.214 or Religion 09.214.

D.G. Bowen

Religion 34.219★

Life and Thought in Ancient Israel

An examination of the major themes contained in early Hebrew literature through study of the first six books of the Hebrew Bible in English translation. Topics for interpretation will include creation and myth, Israel's patriarchs, the Exodus from Egypt, revelation at Sinai, the Israelite occupation of Canaan, and the desert experience. Emphasis will be given to the traditional ways by which scholars have attempted to interpret these writings and how these ways or methods relate to new approaches such as structural analysis.

Prerequisite: Religion 34.120, or permission of the Department.

Day division, First term: Lecture-discussion periods two hours a week.

R.M. Polzin

Religion 34.220

The Hebrew Prophets

A study of the nature, development and significance of Hebrew prophecy. Psychological aspects of the prophetic experience, including the call, "ecstasy", symbolic actions, and the power of the "word". Investigation of problems such as: the political role of the prophets, relation of the prophets to the cult, distinction of true and false prophets, prediction and fulfillment, compilation of prophetic books. Major attention will be given to the activities and messages of the classical prophets.

Prerequisite: Religion 34.120, or permission of the Department.

Not offered 1975-76.

Religion 34.221★

Hebrew and Near Eastern Wisdom Literature

An investigation of major themes in the wisdom literature of the Hebrew Bible in English translation (e.g., Job, Proverbs, Ecclesiastes, Song of Solomon) in the context of ancient Near Eastern wisdom literature generally. Topics for interpretation include: tensions between religious faith and personal experience; God and the presence of suffering in the world; rules for success in life and business; the religious sceptic; the permission of suicide and the delights of human love. Emphasis will be given to the traditional ways by which scholars have attempted to interpret these writings and how these

methods relate to newer approaches such as structural analysis.

Prerequisite: Religion 34.219★, or permission of the instructor.

Day division, Second Term: Lecture-discussion periods two hours a week.

R.M. Polzin

Religion 34.223★

Between the Testaments

A study of the period from about 400 B.C. to 100 A.D.: the history, movements, ideas crucial to the development of Judaism and Christianity, as documented especially in the writings which were not included in the Bible. Consideration of wisdom literature, apocalyptic writings, historical works and Rabbinical literature. Special attention will be given to the Dead Sea Scrolls.

Prerequisite: Religion 34.120, or permission of the Department.

Not offered 1975-76.

Religion 34.225

The Life and Teaching of Jesus

The course will be concerned with a systematic study of the available records of the life of Jesus. Class periods will be mainly taken up with free class discussions of successive sections of the gospel parallels of Matthew, Mark and Luke. There will be accompanying lectures and readings on the historical context of the life of Jesus and on the milieu within which the records developed.

Day and Evening divisions: Seminar three hours a week.

R.E. Osborne, S.G. Wilson

Religion 34.230

The Life and Thought of Paul

Paul's relation to the Old Testament, Rabbinic Judaism, and Hellenism; the mission to the Gentiles; the "mysticism" of Paul; central ideas such as justification by faith, predestination, the Holy Spirit, the Church. Consideration of the situation and message of each of Paul's writings.

Prerequisite: Religion 34.120, or permission of the Department.

Day division: Lecture-discussion periods two hours a week.

R.E. Osborne, S.G. Wilson

Religion 34.235

Religion and Ethics

A study of the ethical teachings of a number of the great world religions with special attention to Judaism and Christianity and an exploration of the implications of these teachings in the context of modern conditions. Students will be asked to choose, individually or in groups, an area of contemporary ethical concern for more intense investigation; e.g., sexual ethics; drug use; Canadian treatment of Indians, Eskimos and other ethnic minorities; Canadian involvement in peace-keeping operations; Canadian external aid; French-Canadian English-Canadian relations and the ethics of nation

building; aspects of business ethics; issues of social and economic conflict; social welfare and human rights.

Day division: Seminar three hours a week.

A.R. Gualtieri

Religion 34.236

Selected Topics in Religion

Not offered 1975-76.

Religion 34.240

Judaism and the Jewish People

An introduction to Judaism and the Jewish people from the destruction of the Second Temple in 70 C.E. until the present day in Europe and America. A broad historical survey of the religion, culture and civilization of the Jews in the East and the West during the Rabbinic age, the Middle Ages and the modern period. Special attention will be given to basic beliefs and practices as well as to trends and movements important to contemporary Judaism.

Day and Evening divisions: Lectures two hours a week.

E. Rothman

Religion 34.260

Philosophy of Religion

Offered in the Department of Philosophy as Philosophy 32.260.

Religion 34.265

Psychology of Religion

A study of western and non-western religious experience and its interpretation by such authors as William James, Freud, Jung, Allport, Maslow, Erikson and B.F. Skinner. Prerequisite: One course in either Religion or Psychology, or permission of the Department.

Evening division: Lecture-discussion periods three hours a week.

C.P. Slater

Religion 34.270

Development of Christian Thought

Offered at St. Patrick's College as Religion 09.270.

Religion 34.280

Modern Religious Thought

A study of major developments in modern religious thought in response to existentialist, Marxist and positivistic critiques of traditional theology. Selected nineteenth and twentieth century authors such as Kierkegaard, Feuerbach, Nietzsche, Barth, Tillich and Whitehead will be read as well as recent work in linguistic analysis, political theology and modern literature.

Prerequisite: Religion 34.130, or permission of the Department.

Not offered 1975-76.

Religion 34.305

Cultural and Intellectual History of the Middle Ages

Offered in the Department of History as 24.305.

Religion 34.320

Classical Hindu Philosophers and their Modern Interpreters

The philosophies of Samkara, Ramanuja and Madhva. An introduction to the Tantra system. Modern Hindu movements with special emphasis on the Brahmo Samaj, Ramakrishna movement and the Integral Vedanta of Sri Aurobindo. The influence of Hindu thought on the general development of Indian culture.

Prerequisite: Religion 34.100.

Not offered 1975-76.

Religion 34.337

The Johannine Literature

The course will consider interpretations of the Fourth Gospel and the Johannine Epistles involving a close examination of the texts and related problems, such as historical value, symbolic features.

Prerequisites: Religion 34.120 and one of Religion

34.223 ★, 34.225 or 34.207.

Not offered 1975-76.

Religion 34.340

Medieval Muslim Religious Thought

This course will attempt historically and systematically to survey the development of Medieval Muslim religious thought for the period 700-1600 A.D. The emphasis will be placed upon the reading of translation of primary sources with supplementary readings in the important secondary studies. Some of the thinkers and groups to be considered are the Mu'tazilah, the Shi'ah, the Khawārij, al Ghazālī, al-Ash'ari and his followers, al-Maturidi and his followers, al Shāfi'i, Ibn al-'Arabī, Ibn Khaldūn, and al Hillī.

Prerequisite: Religion 34.100 or permission of the Department.

Not offered 1975-76.

Religion 34.345

Cultural and Intellectual History of the Jews in the Muslim World

A study of the development of the Jews, their society, thought and religion, in the Muslim world, with special reference to the status of the Jewish community after the rise of Islam; the evolving relationship between Judaism and Islam in Spain and elsewhere; the development of law and institutions in the middle ages; and the cultural and intellectual origins of the Jewish-Muslim relationship in the twentieth century. Different themes will be studied each year the seminar is taught.

Prerequisite: Religion 34.240, or permission of the Department.

Not offered 1975-76.

Religion 34.350

Modern Jewish Thought

Modern Jewish thought in response to the Enlightenment, the Zionist and Reform movements, the Holocaust and the establishment of Israel. Special attention will be given to such authors as Mendelssohn, Hirsch, Herzl,

Rosenzweig and Fackenheim. Different themes will be studied each year the seminar is taught.

Prerequisite: Religion 34.240, or permission of the Department.

Day division: Seminar three hours a week.

E. Rothman

Religion 34.370

Theories and Methods in the Study of Religion

This course analyses and seeks a constructive resolution to theoretical and methodological problems such as the following: the definition of religion; understanding the faith of others; the role of presuppositions in interpreting religious data; multidisciplinary approaches (historical, phenomenological, sociological, psychological, theological, dialogical) and the question of a distinctive methodology for religious studies; theories of the nature and origins of religion; religious diversity and the question of religious truth.

Not offered 1975-76.

Religion 34.484 ★

Seminar in Hebrew and Christian Scriptures

Religion 34.485 ★

Seminar in Hebrew and Christian Scriptures

Religion 34.486 ★

Seminar in History of Religions

Religion 34.487 ★

Seminar in History of Religions

Religion 34.488 ★

Seminar in a Major Topic in Modern Religious Thought

Religion 34.489 ★

Seminar in a Major Religious Thinker or Thinkers

Religion 34.490

Tutorial (Equivalent to two courses)

Prerequisite: Permission of the Department.

Day or Evening division: Hours to be arranged.

Members of the Department

Religion 34.492

Tutorial (Equivalent to one course)

Prerequisite: Permission of the Department.

Day or Evening division: Hours to be arranged.

Members of the Department

Language Courses

Language courses are intended primarily for students wishing to specialize in a particular religious tradition. Courses taken at the 200 level or above will be mainly independent study under the supervision of a member of the Department. Students interested in taking these courses should consult the department chairman.

Religion 34.015

Introduction to Hebrew

An introduction to Hebrew with emphasis on reading comprehension and conversation. Language tapes are used in conjunction with the textbook. Restricted to beginners in the language.

Prerequisite: Permission of the Department.

Evening division: Lecture periods three hours a week.

Religion 34.016★

Non-Indo-European Language Study I

Given in Linguistics as 29.381★.

Religion 34.017

Introduction to Sanskrit

A beginner's introduction to the fundamentals of the language with emphasis on reading and writing skills.

Evening division: Three hours a week.

B. Sundaresan

Religion 34.215

Readings in Biblical Hebrew

A study of the grammar and syntax of selected readings, with guidance in translation, composition and interpretation.

Prerequisites: Hebrew 34.015 or equivalent, and Religion 34.120.

Religion 34.216

Readings in Classical Arabic

Selected readings from the Qur'ān will be examined for grammar, syntax and content and the course will involve translation, composition and interpretation.

Prerequisites: Linguistics 29.381★ and Religion 34.100.

Religion 34.217

Readings in Sanskrit Literature

A study of selected readings from early Hindu literature.

Prerequisites: Religion 34.017 and 34.100.

Religion 34.218

New Testament Greek

A study of the form and content of prescribed readings from the New Testament in Greek with guidance in translation and exegesis.

Prerequisites: Greek 15.015 and Religion 34.120.

Religion 34.392

Language Tutorial

An advanced study of a language in which one of the religious traditions has been transmitted.

Courses Offered at St. Patrick's College*Religion*

09.100 Introduction to World Religions

09.120 Introduction to the Bible

09.305 Models of God and Man In the Thought of Paul Tillich, Teilhard de Chardin and C.G. Jung.

Courses Planned for Summer School and Evening Division, 1975-78*Summer 1975*

34.100, 34.120, 34.220, 34.236, 34.270, 34.337

Evening Division 1975-76

34.015, 34.100, 34.120, 34.130, 34.208, 34.225, 34.235, 34.240, 34.265

Summer 1976

34.100, 34.120, 34.208, 34.225, 34.240, 34.280

Evening Division 1976-77

34.015, 34.100, 34.120, 34.130, 34.200, 34.206, 34.207, 34.225, 34.240, 34.337, 34.345

Summer 1977

34.100, 34.120, 34.202, 34.219/34.221, 34.230, 34.235

Evening Division 1977-78

34.015, 34.100, 34.120, 34.130, 34.208, 34.220, 34.225, 34.240, 34.280

Department of Russian

Officers of Instruction

Chairman

V.I. Grebenschikov

Professor

V.I. Grebenschikov

Associate Professors

G.R. Barratt

G. Melnikov

E. Stichling

P. Varnai

Sessional Lecturers

A. Lewinson

J. Rakušan

H. Van de Lagemaat

The Russian Program

The Department of Russian offers a very flexible undergraduate program aimed at satisfying various professional and academic interests of the students. Three major concentration areas are available: (a) Russian literature, (b) Soviet period studies; (c) language and linguistics, with an option in translation training.

Major Program

The core of a Major program in Russian (single or combined) consists of two courses selected from: Russian 36.200, 36.203, 36.250, depending on the chosen concentration.

A single Major has to choose *three* additional Russian courses above the 100 level, while the Combined Major chooses *two* additional courses.

To ensure the efficiency of the chosen concentration, the students are advised to select their options in close consultation with the Department.

Honours Programs

The core of an Honours program in Russian (single or combined) consists of three courses: Russian 36.250, 36.300 and 36.450 for the concentration in literature; or Russian 36.300, 36.303 and 36.415 for the linguistic concentration.

The single Honours student chooses *six* additional Russian courses, predominantly in the 300 and 400

levels, while the Combined Honours student takes *four* additional Russian courses.

The selection of options should be made in close consultation with the Department.

Combined Majors and Honours are possible with a number of other subjects, among them History, Political Science, Journalism, English, French, Italian, German, Spanish and Linguistics. The Department is also participating in the Comparative Literature program and the Soviet and East European Studies program.

Combined Honours in Russian and Linguistics, Translation Option

A special Combined Honours program is also available to students contemplating a career in Russian to English translation. In this program, the following courses are required:

Linguistics

29.100 Introduction to Linguistics

29.200 Syntactic Analysis

29.201 ★ Phonetics

29.285 Structures of English

29.490 Tutorial in Linguistics. Tutorial consists obligatorily of directed readings in the theory of translation.

Russian

36.100 Intermediate Russian

36.200 Advanced Russian

36.203 Russian Grammar

36.300 Russian Style and Composition

36.303 Russian Translation

36.491 Tutorial. For students in this program a practicum in translation, with analysis and criticism of selected professional translations.

36.499 Honours Essay. For students in this program an annotated translation of a substantial piece of text, with oral defence before a panel consisting of a member of the Russian Department, a member of the Linguistics Department, and a professional translator from the Association of Translators and Interpreters of Ontario or the Department of the Secretary of State.

French

At least a 100 level course.

At least five of the remaining course credits shall be chosen from the following list, or from other courses in the same disciplines. Students should discuss with their advisers the different consequences of taking either a sequence of courses in one subject or introductory courses in a number of subjects. With permission, the choice of disciplines may be extended to suit special needs.

Journalism

28.110 Introduction to Human Communication

Accounting

41.100 An Introduction to Accounting

Economics

43.100 Principles of Economics

43.101 Contemporary Economic Issues

Geography

45.100 Earth Science

45.101 The Geographic Web

Political Science

47.100 Introduction to Political Science

Law

51.100 Introduction to Legal Studies

Sociology-Anthropology

56.100 Introduction to Sociology-Anthropology

Biology

61.100 General Biology

61.101 Introductory General Biology

61.190 Biology and Man

Chemistry

65.106 The Study of Matter and Energy

Geology

67.100 General Geology

67.111★ and 67.112★ Environmental Geology I and II

Physics

75.100 or 75.105 Introductory Physics

Computing Science

95.101★ or 95.102★ Introduction to Computers for the Social Sciences or Introduction to Computing Science

French

20.200 Cours avancé de langue française

20.300 Grammaire française

20.301 Traduction

Russian

Approved literature courses

Service Courses

1. *Scientific Russian*: The Department is offering a special course of reading and translation for students in Sciences, Engineering, or other Graduate and Undergraduate programs, who are interested in quickly acquiring the ability to use Russian scientific and professional text for their own information or research purposes. Russian 36.110 is such a specially designed course, where only essential grammar and extended practice in reading and translating of special Russian

texts are emphasized. This course can serve as an Arts option for students in any program.

2. *Russian Literature in Translation* (36.260) and *Studies in Russian Life and Culture* (36.360). Conducted entirely in English, these two courses are designed as Arts options for all students wishing to broaden their general knowledge of culture and literature.

3. *Other Slavic Languages*: The Department is also offering additional options in other Slavic languages: (a) A basic sequence of Ukrainian 36.016, 36.116 and 36.216, all in the Evening division; (b) Slavic 36.390, Slavic Language Tutorial, where the reading-grammar and/or the theoretical linguistic approach are emphasized. The following languages can be offered: Bulgarian (with introduction to Macedonian), Czech (with introduction to Slovak), Hungarian, Old Slavonic, Polish, Serbo-Croatian.

Facilities

The University's language laboratory provides facilities for drill in aural comprehension. Students may take extra practice periods in open hours. The language laboratory is used in the following courses: Russian 36.015, 36.100, Ukrainian 36.016, 36.116. Oral examinations are given in these courses and in Russian 36.101★ and 36.201★. The audio-visual method is applied in the initial phases of the courses 36.016 and 36.101★.

Courses Offered**Russian 36.015****Introductory Russian**

Introductory course, the aim of which is to ensure an adequate grasp of the mechanics of the language and basic skills in oral comprehension. Reading of texts. One hour per week devoted exclusively to Russian conversation in class. Oral practice in the language laboratory. Day and Evening divisions: Four hours a week plus one laboratory period a week.

Also offered in Summer session.

Russian 36.100**Intermediate Russian**

Continuation of the basic sequence. Grammar studies, composition, oral drill, reading of selected poetry and prose.

Prerequisite: Russian 36.015 or equivalent.

Day and Evening division: Three hours a week, plus one laboratory period.

Russian 36.101★

Russian Conversation

Conversation and discussion of current topics with special emphasis on everyday Russian. Occasional written work. Twelve hours of audio-visual introduction. Prerequisite: Russian 36.015, or permission of the Department (may be taken concurrently with Russian 36.100).

Summer 1975, Evening division: Three hours a week.

Russian 36.110

Scientific Russian

This course is designed to meet the needs of all students of the Faculties of Science, Engineering and Graduate Studies of any year who require a reading knowledge of Russian scientific or technical literature. It will include the essentials of Russian grammar, a basic vocabulary, and the reading and translation of technical and scientific texts. No language laboratory.

Evening division: Three hours a week.

G. Barratt

Russian 36.200

Advanced Russian

Continuation of the basic Russian sequence. Introduction to prose composition and essay writing; further development of comprehension and self-expression in Russian.

Prerequisite: Russian 36.100 or equivalent.

Day and Evening divisions: Three hours a week.

E. Stichling

Russian 36.201★

Advanced Russian Conversation

An advanced sequel to Russian 36.101★. May be taken concurrently with Russian 36.200.

Summer 1975, Evening division: Three hours a week.

Russian 36.203

Russian Grammar

A systematic review of Russian grammar: selected problems of phonetics and phonology; morphology and syntax, with an introduction into structural and transformational models of Modern Russian.

Prerequisite: Russian 36.100 or equivalent.

Day division: Three hours a week.

Russian 36.250

Russian Classics of the Nineteenth Century

Introduction to Russian literature. A study of representative original works of Russian prose, poetry and drama of the period: Pushkin, Lermontov, Gogol, Chekhov and others.

Prerequisite: Russian 36.100 or equivalent.

Evening division: Three hours a week.

G. Melnikov

Russian 36.260

Russian Literature in Translation—Nineteenth and Twentieth Centuries

A study of selected works of Russian and Soviet literature in the general context of European literature and against their social and political background. It will include works by Pushkin, Gogol, Turgenev, Leo Tolstoy, Dostoyevsky, Chekhov, Gorky, Sholokhov, Pasternak, Solzhenitsyn. This course will not count as a credit for Majors in Russian, but can serve as an Arts option for all students.

Day division: Three hours a week.

P. Varnai

Russian 36.300

Russian Style and Composition

Continuation of the basic Russian sequence. Introduction to stylistics and expressive writing. Analysis of semantic and structural peculiarities of Modern Russian. Prerequisite: Russian 36.200 or equivalent.

Day division: Three hours a week.

V. Grebenschikov

Russian 36.303

Russian Translation

A course of contrastive grammar and stylistics of Russian, English and French. Theory of translation, and extensive exercises in text translation from and into Russian.

Prerequisite: Russian 36.203 or equivalent.

Evening division: Three hours a week.

V. Grebenschikov

Russian 36.330

Russian Early Classics

A study of the main literary trends in the new Russian literature, and the most important representatives of Sentimentalism, Romanticism and early Realism: Karamzin, Fonvizin, Griboyedov, Krylov, Joukovsky, Pushkin, Lermontov, Gogol. Introduction to Russian versification.

Prerequisite: Russian 36.200 or 36.250.

Offered every other year. Not offered 1975-76.

Russian 36.350

Literature and the Russian Revolution

A study of the Russian literature of the revolutionary years (1905-35) and the major trends and experiments in the shaping of a new literature: Symbolism, Futurism, Proletarian Culture, Socialist Realism. Authors studied: M. Gorky, S. Essenin, V. Mayakovsky, A. Blok, I. Babel, L. Leonov, A. Tolstoy.

Prerequisite: Russian 36.200 or 36.250.

Offered every other year.

Day division.

G. Melnikov

Russian 36.360

Studies in Russian Life and Culture

Under this general title the Department offers service courses in English aimed at students wishing to enlarge their knowledge and understanding of Russia and its culture. This course does not count as credit for Russian Major requirements, but can serve as an Arts option for all students. In 1975-76 the course will focus on Pushkin's *Eugene Onegin*. Attention will be devoted to the literary and intellectual background of the core text, and of Pushkin's work in general to intellectual, cultural and political issues raised, or reflected in *Eugene Onegin*. A detailed outline of this course is available from the Department.

Prerequisite: Permission of the instructor.

Evening division: Two hours a week.

G. Barratt

Russian 36.399

Introduction to Methods of Research

Tutorial on topics of Russian or comparative language and literature, aimed at training in methods of scholarly research and Slavic bibliography.

Russian 36.415

History of the Russian Language

The place of modern Russian among the Indo-European languages. The historical development of Russian from Old Slavic to the present. Selected studies in historical grammar and analytical reading of selected medieval and modern texts.

Prerequisite: Russian 36.203 or equivalent.

Offered every other year.

Day or Evening division: Two hours a week.

J. Rakušan

Russian 36.430

Russian Realism of the Nineteenth Century

A concentrated study of selected works by Turgenev, Dostoyevsky, Tolstoy and Chekhov.

Prerequisite: A Russian course at the 300 level.

Offered every other year. Not offered 1975-76.

Russian 36.440

Contemporary Russian Drama

A study of selected dramatic literature from the Russian revolution to the present against the social and political backgrounds of the times. Major playwrights studied will include Mayakovsky, Vishnevsky, N. Pogodin, Leonov, Gorky, Trenev, Rozov, Volodin and others.

Prerequisite: A Russian course at the 300 level.

Offered every other year. Not offered 1975-76.

Russian 36.450

Contemporary Russian Literature (After 1935)

A study of representative works of contemporary Soviet Russian writers: A. Tvardovsky, K. Simonov, K. Paustovsky, M. Bulgakov, I. Ehrenburg, V. Soloukhin, V. Aksionov, Yv. Kazakov, E. Evtushenko, A. Voznesensky,

and others.

Prerequisite: A Russian course at the 300 level.

Offered every other year.

Day or Evening division: Two hours a week.

Russian 36.460

Old Russian Literature

Survey of Kievan and Muscovite periods. Emphasis on the eighteenth century prose.

Prerequisite: A Russian course at the 300 level.

Offered every other year.

Day or Evening division: Two hours a week.

Russian 36.470

Modern Russian Literature

A study of selected prose of the Russian Nobel Prize winners: Bunin, Pasternak, Sholokhov and Solzhenitsyn.

Prerequisite: A Russian course at the 300 level.

Offered every other year.

Day or Evening division: Two hours a week.

V. Grebenshikov

Russian 36.490★

Special Subject

Tutorial on topics of Russian literature or linguistics to be assigned by the instructor in consultation with the student.

Russian 36.491

Tutorial

As Russian 36.490★, but offered for full-course credit with a corresponding enlargement of scope and assignments. (Also listed as Comparative Literature 17.506, Styles and Periods.) For students in the Translation Option, a practicum in translation, with analysis and criticism of selected professional translations.

Russian 36.499

Honours Essay

An option for final year Honours students. For students in the Translation Option, an annotated translation of a substantial piece of text, with oral defense before a panel consisting of a member of the Russian Department, a member of the Linguistics Department, and a professional translator.

Ukrainian 36.016

Introductory Ukrainian

An introductory course designed to give the students the fundamentals of written and spoken Ukrainian. Grammar, reading and oral practice. Language laboratory. Ten hours of audio-visual introduction.

Evening division: Three hours a week and a laboratory session.

Ukrainian 36.116

Intermediate Ukrainian

Grammar review, composition, advanced conversation. Reading of selected Ukrainian prose and poetry.

Prerequisite: Ukrainian 36.016 or equivalent.

Evening division: Three hours a week and a laboratory session.

Ukrainian 36.216

Advanced Ukrainian

An advanced course of Ukrainian language with readings from Ukrainian authors representing the most typical features of Ukrainian culture in the nineteenth and twentieth centuries.

Prerequisite: Ukrainian 36.116 or equivalent.

Evening division: Three hours a week.

Slavic 36.390

Slavic Language Tutorial

A study in a Slavic or East-European language, other than Russian or Ukrainian, which may be useful for research, information or translation activities to any graduate or undergraduate student. The course will consist of a two-hour meeting per week with an instructor, and intensive training in language laboratory. The choice of the language in each particular year will depend on the students' demand and the availability of the instructor.

Prerequisite: Russian 36.100 or 36.110 or Ukrainian 36.116 or equivalent.

Courses Planned for Summer School and Evening Division, 1975-78

Summer 1975

36.015, 36.101★, 36.201★.

Evening Division 1975-76

36.015, 36.016, 36.100, 36.110, 36.200, 36.250, 36.303, 36.360.

Summer 1976

36.015, 36.101★, 36.201★.

Evening Division 1976-77

36.015, 36.016, 36.100, 36.110, 36.116, 36.200, 36.203, 36.216, 36.260, 36.300.

Summer 1977

36.015, 36.101★, 36.201★.

Evening Division 1977-78

36.015, 36.016, 36.100, 36.110, 36.200, 36.250, 36.303, 36.350, 36.360.

Officers of Instruction

Chairman

Muni Frumhartz

Assistant Chairman

Dennis P. Forcese

Co-ordinator, St. Patrick's College

Caryll Wells

Co-ordinator of Graduate Program

Derek Smith

Co-ordinator of Honours Anthropology Program

Valda Blundell

Co-ordinator of Honours Sociology Program

Gertrud Neuwirth

Co-ordinator of Interdisciplinary Major Program

Hyman Burshtyn

Professors

Rodney K. Crook

Muni Frumhartz

John Harp

Gordon Irving (*St. Patrick's College*)

Zbigniew A. Jordan

Bruce A. McFarlane

Gertrud Neuwirth

John Porter

Victor F. Valentine

Francis G. Vallee

Associate Professors

Hyman Burshtyn

Bruce Cox

Dennis P. Forcese

Fred K. Hatt (*St. Patrick's College*)

Kenneth Mozersky

Terrance Nosanchuk

Ian Pool

Stephen Richer

Derek Smith

Donald Whyte

Assistant Professors

Valda Blundell

Monica Boyd

John Cove

Colin Farmer (*St. Patrick's College*)

Harvey Feit

Charles C. Gordon

Barclay Johnson (*St. Patrick's College*)

Joseph Manyoni

Iain Prattis

Allan D. Steeves

James A. Vantour (*St. Patrick's College*)

John de Vries

Caryll Wells (*St. Patrick's College*)

Lecturers

Florence J. Hughes (*St. Patrick's College*)

Hugh McRoberts

Dennis Olsen

Major Programs

The Department offers one Major program: that of Major in Sociology-Anthropology. Students who Major in the Department are expected to attain a grade of C- or better in the introductory course. Their program will normally consist of at least six courses in the Major field, including Sociology-Anthropology 56.100; 56.200; one of 53.300, 56.305 or 54.310; and at least one additional course at the Third-year level. Final-year students with the requisite standing may be given permission to take a course at the Fourth-year level. It is also expected that some work will be taken in related disciplines, the most important of which are: Economics, Geography, History, Political Science and Psychology. The whole course program is to be worked out in consultation with the Co-ordinator of Majors and the student's departmental adviser.

A student may not count more than nine full-course credits or their equivalent in Sociology and/or Anthropology toward a Major B.A. degree.

Combined Major Programs

A Major program combining Sociology-Anthropology with another discipline requires a minimum of four Sociology-Anthropology courses including 56.100 and either 56.200 or one of 53.300, 56.305 or 54.310. At least one of the remaining courses taken within the Department must be at the Third-year level. The program should be worked out in cooperation with the two Departments and may well include other requirements additional to those above.

Honours Programs

General

Honours programs may be entered from the Honours First year in the Social Sciences (see p. 58) or by transfer from the Major course if the appropriate standing has been attained. Students taking Honours in Sociology or Anthropology are expected to meet the general University regulations governing the degree and to fulfill certain additional requirements depending on the program

selected. The Practicum or the Essay will be considered as a course in determining a student's final standing. The following programs are available.

Sociology

The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Sociology) or members of the Honours Program Committee (Sociology). The requirements consist of:

1. Nine full-course credits, or their equivalent, in Sociology and/or Anthropology, including:
 - (a) The introductory course Sociology-Anthropology 56.100;
 - (b) Sociology-Anthropology 56.200 and Sociology 53.370;
 - (c) Sociology 53.300 and Sociology-Anthropology 56.305 (one of these should be taken in the Second year);
 - (d) Two half-year seminars or one full-year seminar at the 400 or 500 level;
 - (e) Sociology 53.495 (Honours Practicum) or 53.498 (Honours Essay);
 - (f) Two additional full courses, or their equivalent, within the Department.
2. A Minor consisting of three full courses in one of the following: Economics, Geography, History, Philosophy, Political Science or Psychology. Alternative Minors will also be considered.
3. It is recommended that students take Mathematics 69.101, preferably during their First year or as soon as possible thereafter.
4. A maximum of twelve full credits in Sociology and Anthropology may be counted toward the degree of B.A. with Honours in Sociology.
5. A total of twenty full-course credits or their equivalent is required.

Anthropology

The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Anthropology) or members of the Honours Program Committee (Anthropology). The requirements consist of:

1. Nine full-course credits, or their equivalent, in Sociology and/or Anthropology, including:
 - (a) The introductory course Sociology-Anthropology 56.100;
 - (b) Sociology-Anthropology 56.200, Anthropology 54.310, 54.410 and 54.495;
 - (c) Two additional half-year seminars or one full-year seminar at the 400 or 500 level;
 - (d) Three additional full courses, or their equivalent, within the Department.

2. A maximum of twelve full credits in Sociology and Anthropology may be counted toward the degree of B.A. with Honours in Anthropology.

3. A total of twenty full-course credits or their equivalent is required.

Combined Honours in Sociology

Students intending to enter an Honours Program combining Sociology with another discipline should take Sociology-Anthropology 56.100 and the introductory course in the other discipline in their First year. A minimum of seven courses in Sociology and/or Anthropology is required, but no more than nine may be counted toward the degree. The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Sociology) or members of the Honours Program Committee (Sociology), as well as with the equivalent person(s) in the other discipline.

Combined Honours with a considerable number of disciplines is possible and will be worked out upon request. The following programs have recently been revised.

Combined Honours in Sociology and Political Science

Required courses in Sociology and/or Anthropology include:

1. Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200, followed by Political Science 47.470 or Political Science 47.270 followed by Sociology 53.370;
3. Sociology 53.300 or Sociology-Anthropology 56.305 (if the Honours Essay is written in Sociology, 53.300 is recommended);
4. If the Honours Essay is written in Sociology: Sociology 53.495 or 53.498, and three additional full credits in Sociology, one of which must be taken at the 400 or 500 level. If the Honours Essay is written in Political Science: four additional full credits in Sociology, one of which must be taken at the 400 or 500 level.

Note: Students should also consult the statement of the Department of Political Science.

Combined Honours in Sociology and Psychology

Required courses in Sociology include:

1. Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200;

3. Sociology 53.300 or Sociology-Anthropology 56.305 (if the Honours Essay is written in Sociology, 53.300 is recommended);

4. If the Honours Essay is written in Sociology: Sociology 53.370; 53.495 or 53.498; and two additional courses in Sociology, one of which must be taken at the 400 or 500 level. If the Honours Essay is written in Psychology: Psychology 49.305 and four additional courses in Sociology, one of which must be taken at the 400 or 500 level.

Note: Students should also consult the statement of the Department of Psychology.

Combined Honours in Anthropology

Students intending to enter an Honours Program combining Anthropology with another discipline should take Sociology-Anthropology 56.100 and the introductory course in the other discipline in their First year. A minimum of six courses in Anthropology and/or Sociology is required. The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Anthropology) or members of the Honours Program Committee (Anthropology), as well as the equivalent person(s) in the other discipline.

Combined Honours with a considerable number of other disciplines is possible and will be worked out upon request.

Ordinarily, the requirements will include:

1. Six full-course credits in Anthropology and/or Sociology, including:

- (a) Sociology-Anthropology 56.100;
- (b) Sociology-Anthropology 56.200;
- (c) Anthropology 54.310.

2. Where the Honours Practicum is taken in Anthropology, Anthropology 54.410 and 54.495 plus one additional full course, or equivalent, at the 400 or 500 level are required.

3. Where the Honours Essay is written in another discipline, three additional full courses, or equivalent, must be taken in Sociology and Anthropology, one of them at the 400 or 500 level.

Graduate Program

The Department offers studies leading to the following graduate degrees: M.A. in Sociology, M.A. in Social Anthropology and Ph.D. in Sociology. For further details consult the Graduate Studies and Research Calendar. Final-year Honours students may take one or more

graduate seminars with the permission of the instructor. The courses that are especially recommended are listed at the end of this section of the Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217.

Prerequisite

The normal prerequisite for courses taken beyond the 100 level is Sociology-Anthropology 56.100. An introductory course in Sociology or Anthropology taken at Carleton University prior to 1972-73, or at another university, will ordinarily satisfy the prerequisite requirement. Other students may be admitted with permission of the instructor.

Course-Related Tutorials

Students within the Department should consider including among their courses one or more course-related tutorials (Sociology-Anthropology 56.291★, 56.292★, 56.391★ and 56.392★). These are intended to permit students (1) to work on their own and in close contact with an instructor and/or a small set of peers and (2) to work on questions or at a level beyond the central concerns of formally constituted courses.

Such tutorials may be taken for half-course credit either concurrently with any full course (except Sociology-Anthropology 56.100) in which the student is enrolled or in the term immediately following a course, full or half, which the student has completed. The tutorial arrangements are generally flexible and are worked out between the student and his tutor. If a number of students choose to do so, the arrangements may include small seminars or workshops either with the instructor or among the students themselves.

Permission to take a tutorial of this type is contingent upon the availability of the instructor in the course or of another instructor with experience and interest in the field. It also requires a detailed proposal by the student and approval by the instructor, outlining the project or course of study to be undertaken and its bearing upon the main course.

Further information is available from course instructors.

Courses Offered

Sociology-Anthropology 56.100

Principles of Comparative Social Structure

An introduction to the comparative study of human society from the twin perspectives of sociology and social anthropology. The principal focus will be upon problems of societal continuity and change in highly complex as compared with relatively simple societies. The several sections of the course may be expected to reflect different emphases and approaches. Section outlines and reading lists will be available prior to registration.

Day and Evening divisions: Lectures and discussion three hours a week.

Summer 1975, Day division: Lectures and discussion ten hours a week; Evening division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.200

Research Methods in Anthropology and Sociology

An examination of the logic, principles and methods employed in anthropological and sociological research, and of problems in the ethics of research. Attention is paid to alternative approaches and strategies and to the uses of observation, ethnography, experimental design, questionnaires and interviews, sampling, surveys, secondary analysis of quantitative data, and measurement. Laboratory work and field exercises are emphasized.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day and Evening divisions: Lectures and workshop three hours a week.

Summer 1975, Day division: Lectures and workshop twelve hours a week.

Anthropology 54.200

Syntactic Analysis

Also offered as Linguistics 29.200.

Anthropology 54.201 ★

Phonetics

Also offered as Linguistics 29.201 ★.

Anthropology 54.202 ★

Phonology

Also offered as Linguistics 29.202 ★.

Anthropology 54.206 ★

Hunting and Gathering Societies

Hunting and gathering societies will be examined as a consequence of a particular mode of adaptation. This mode will be analyzed in terms of its ecological and evolutionary significance. Emphasis will be placed on the use of ethnographic materials from different societies.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, First term: Lectures and discussion three hours a week.

J. Cove

Summer 1975, Day division: Lectures and discussion five hours a week.

Anthropology 54.207 ★

Horticultural Societies

Horticulture will be examined as a mode of adaptation having consequences for human society. The specific implications will be viewed through an ecological and evolutionary perspective. Ethnographic material from different cultures will be used to illustrate the relations between horticulture and social organization.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Not offered 1975-76.

Summer 1975, Evening division: Lectures and discussion five hours a week.

Anthropology 54.208 ★

Pastoral Societies

An examination of pastoralism as a form of human adaptation. The evolutionary and ecological implications of various types of animal husbandry will be examined. Emphasis will be placed on the use of ethnographic materials.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, Second term: Lectures and discussion three hours a week.

J. Manyoni

Sociology 53.210

Social Psychology

The study of the relationship between the individual and the social system. Emphasis is on integrating individual and social approaches. How does a group influence psychological processes (attitudes, cognitions, motivations, etc.)? How does an individual influence a group? Group processes such as socialization, symbolic interaction, coercion, conformity, leadership, cohesion, etc., will be studied.

Prerequisite: Sociology-Anthropology 56.100 or equivalent, introductory Psychology or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

T. Nosanchuk

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.215

Religion and Society

A broad survey of religious institutions, with comparative and historical emphases. Examination will be made of the major social, cultural, and psychological theories of

religion, as well as of the methodological problems associated with the subject matter. Attention will also be placed on a range of topics such as totemism, social change, utopian communities, secularization, and the relationship of religion to other social institutions and processes.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Not offered 1975-76.

Anthropology 54.225

Prehistoric Anthropology, Cultural and Biological Evolution of Man

An examination, from an evolutionary point of view, of the physical anthropology and archaeology of early man, the origins of man, the development of technology and of complex institutions, and the nature of racial differences.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures two hours a week and workshop one hour a week.

V. Blundell

Summer 1975, Evening division: Lectures and discussion five hours a week.

Anthropology 54.230

Social Systems of Non-Western Societies

A study of social anthropology with an emphasis on cross-cultural comparisons of a sample of world societies in terms of kinship, political, economic, religious and symbolic systems.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.235 (56.325 ★)

Ethnic Group Relations

An anthropological and sociological study of minority groups and of ethnic and "race" relations in multi-cultural societies. The course will focus on intergroup processes within a comparative framework.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

J. Manyoni

Sociology 53.240

Qualitative Research

This course will entail the naturalistic study of small-scale social settings in the context of everyday life. Evaluation of appropriate concepts and styles of qualitative research will serve as a foundation for the major course assignment: an ethnographic study of a local "small life world".

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Lectures and discussion three hours a week.

Sociology-Anthropology 56.241

Kinship, Marriage and the Family

The course will entail a cross-cultural analysis of kinship and kin groups, an examination of the historical development of the family in western society and a general survey of contemporary family life and its relationship to the total society.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

G. Irving

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology 53.245

The Sociology of Work: Occupations and Professions

A study of the sociological aspects of work, with particular emphasis on the historical development and contemporary organization of occupations and professions, career patterns and recruitment, and manpower problems in developed and developing countries.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

B. McFarlane

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology 53.246 ★

Industrial Sociology

An inquiry into the development, structure and prospects of industrial society and post-industrial society, including the relation of industrial institutions to the rest of the society, and the internal organization of industrial institutions, including problems of management, labour and union relations.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, Second term: Lectures and discussion three hours a week.

C. Gordon

Summer 1975, Day division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.248

Canadian Society

The course focuses on the study of Canadian society as an ongoing social system. Alternative theoretical perspectives are developed and examined for the interpretation they provide of recurrent social issues. Special attention is given to persistence and change in regional, ethnic, class and sex-role differences.

Prerequisite: Sociology-Anthropology 56.100, or equivalent.

alent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

D. Olsen

Summer 1975, Day division: Lectures and discussion ten hours a week.

Sociology 53.251 ★

Introduction to Population Studies

An introduction to the basic principles of demography. Past and present population growth, and the determinants of population growth, are examined. Interrelations among demographic, social, cultural and economic factors are investigated. Where possible, Canadian demographic material is discussed.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

I. Pool

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.253 ★

Introduction to Human Ecology

The course will focus on interrelationships among population, organization, environment and technology, and on the relationship between man and the natural environment from the perspective of resource use, management and policy.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, First term and Day division, Second term: Lectures and discussion three hours a week.

H. Feit

Sociology 53.254 ★

Urban Sociology

An examination of issues related to man and the urban environment, including the historical process of urbanization, the rural-urban transition, and the diffusion of urban values and life styles. Some attention will be paid to contemporary urban problems, such as urban renewal, pollution and the pressures of the urban environment on social institutions.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, First and Second terms: Lectures and discussion three hours a week.

Summer 1975, Evening division: Lectures and discussion five hours a week.

Sociology 53.255 ★

Sociology of Deviance

An analysis of the relation of deviant behaviour to the functioning of social systems: conditions and types of deviance from the institutional order, the evasion of

rules, the social roles of deviants, the structure of control, punishment and cure.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, First term and Day division, Second term: Lectures and discussion three hours a week.

H. Burshtyn

Summer 1975, Day division: Lectures and discussion five hours a week.

Sociology-Anthropology 56.285 ★

Selected Topics

Selected topics in sociology and/or anthropology not ordinarily treated in the regular course program. The choice of topics will vary from year to year and will be announced in advance of registration.

Prerequisite: Sociology-Anthropology 56.100 or equivalent, or permission of the instructor.

Not offered 1975-76.

Sociology-Anthropology 56.286 ★

Selected Topics

Topic for 1975-76: The Police in Society. An examination of the organization and role of the police in industrialized societies. Particular attention will be devoted to the discretionary power of the police and to police activities relating to civil control, politics and deviance.

Prerequisite: Sociology-Anthropology 56.100 or equivalent, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

D. Forcese

Sociology-Anthropology 56.291 ★ and 56.292 ★

Course-Related Tutorials

See explanatory note on p. 197.

Sociology 53.300

Contemporary Theoretical Sociology

Consideration is given to the major contemporary theories, such as structural functionalism, social behaviourism, symbolic interactionism, conflict theory and the theory of social action. Apart from the principal substantive issues raised by each of these theories, certain methodological problems associated with the formulation of theories and the relations of theory to research will be discussed.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

Sociology-Anthropology 56.305 (56.203)

The Development of Sociological and Anthropological Thought

The development of sociological and anthropological thought since the end of the eighteenth century. Various theoretical approaches will be placed within their histor-

ical, social and intellectual contexts. The writings of key figures such as Comte, Spencer, Marx, Durkheim, Weber, Malinowski and Radcliffe-Brown will be examined and analyzed as illustrations of the development of theoretical approaches in both disciplines.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

Summer 1975, Evening division: Lectures and discussion five hours a week.

Anthropology 54.310

Theory and Methodology in Anthropology

A consideration of the nature of anthropological theory and of explanation in the anthropological context. Some attention will be devoted to previous formulations relevant to contemporary anthropology, but the emphasis will be on the contemporary formulation of culturology, ecological determinism, evolutionism and structural-functionalism. Special attention will be given to the interdependence of theory and methods of research.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

I. Pratts

Sociology 53.312 ★

Science and Society

An historical and comparative approach to the analysis of science and society. Such topics as the institutionalization and professionalization of science; the organizational context of scientific work; relations between science and other institutions; the norms of science, and the role and career of the scientist will be considered.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Not offered 1975-76.

Sociology 53.315

Sociology of Education

An examination of educational institutions: their interplay with one another and with other social institutions; the structure of educational opportunity; the school and university seen as organizations; individual and social effects of education; the sociology of learning. The approach will be generally comparative and will include a consideration of contemporary critiques of the educational system. (If the course is given in more than one section, the sections will very probably differ in their emphasis, whether in terms of the level of the educational system or in relation to the selection of questions and problems.)

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day and Evening divisions: Lectures and discussion three hours a week.

C. Gordon, S. Richer

Summer 1975, Day division: Ten hours a week.

Sociology-Anthropology 56.320 (53.320)

French Canadian Society

An analysis of the French Canadian way of life, including politics, religion, social structure, cultural values and literature. Consideration is given both to historical development and to the contemporary situation.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

Summer 1975, Evening division: Five hours a week.

Anthropology 54.330

Developing Nations of Inter-tropical Africa

Offered in the Department of Geography as Geography 45.330.

Anthropology 54.331 ★

Kinship Systems

The analysis and understanding of kinship systems. The interconnections between kinship and other societal systems.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Lectures and discussion three hours a week.

Anthropology 54.332 ★

Political Systems

An examination of the anthropological dimensions of power, authority and political behaviour. The development of political institutions. Political functions in band, tribal and state societies.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Lectures and discussion three hours a week.

Anthropology 54.333 ★

Economic Systems

The anthropological analysis of the relation of economic organization, ecology and technology to the rest of society. The various modes of production and distribution of goods in primitive and modern societies. The consequences of economic change.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

J. Cove

Anthropology 54.334 ★

Symbolic Systems

The anthropological analysis of the particular symbolic systems that are related to religion and magic. A section

of the course will be devoted to the structural analysis of myths.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, Second term: Lectures and discussion three hours a week.

Summer 1975, Evening division: Five hours a week.

Sociology 53.335

Social Response to the Built Environment

An examination of the relationships between men and the environment they have created. The course will consider this "built environment" as the product of social processes and as an influence on these processes at varying levels of organization. The First term will concentrate on the present state of knowledge in this area. Research projects in the Second term will attempt to add to this knowledge and to its restatement.

Prerequisites: Third-year standing in Architecture, or an introductory Sociology-Anthropology course, and permission of the instructor.

Day division: Lectures and discussion three hours a week.

Sociology-Anthropology 56.340

Conflict and Society

A comparative study of the strategies used by a number of western and non-western societies to resolve or promote conflict. Examination will be made of the social conditions that generate conflict; and the ideas developed by different cultural groups to explain war, rebellion and revolution. Students will be encouraged to do original research. (Sociology-Anthropology 56.200 or its equivalent in other departments is recommended as a suitable preparation for this course.)

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and discussion three hours a week.

V. Valentine

Sociology 53.345 ★

Stratification and Mobility

An examination of the principal theoretical and empirical questions in the study of social class and social mobility in complex societies. The bases and forms of inequality are examined with the aid of data from Canada, England, the United States, the Soviet Union, China, Japan and a number of other societies.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, Second term: Lectures and discussion three hours a week.

H. McRoberts

Sociology 53.347 ★

Power

The principal concern of the course is the nature of power in human groups—its sources, forms and

processes. Particular attention is paid to community and national elites and power structures.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Lectures and discussion three hours a week.

Sociology 53.351 ★

Methods of Population Analysis

An introduction to demographic techniques. Problems in the collection and analysis of population data, such as population censuses and vital registration. Emphasis will be placed upon the application of "demographic" methods (e.g., cohort analysis) to other areas of sociological investigation.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division, First term: Lectures and discussion three hours a week.

I. Pool

Sociology 53.352 ★

Political Behaviour

An examination of sociological contributions to the study of political behaviour, and of the relations between politics and the social structure, both in Canada and in other societies. Emphasis is placed upon political socialization, the class basis of politics, conflict, mass movements and change.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Not offered 1975-76.

Summer 1975, Day division: Five hours a week.

Sociology 53.355 (53.440 ★ and 53.441 ★)

Complex Organizations

A study of the formal and informal structure of modern, large-scale organizations, such as government, voluntary service groups and industry. Special attention will be given to problems of control, decision-making and communications. Attention will also be given to an examination of factors responsible for the growth or decline in historic bureaucratic systems and to the influence of technology and general systems theory on modern organizational forms.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

Sociology-Anthropology 56.360

Social Change and Modernization

Comparative analysis of social change with particular emphasis on the processes associated with industrialization and their impact on social structure. Problems of internal and external obstacles to modernization; the relations of different social groups to economic development.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

R. Crook

Anthropology 54.362

Contemporary Societies of Africa

Anthropological perspectives in the study of contemporary African societies. Special attention will be paid to processes of change in traditional life styles through migration, urbanization and westernization. The main theme is modernization.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division: Lectures and discussion three hours a week.

Sociology 53.370

Research Methods and Statistics

Study of descriptive and inferential statistical techniques used in the social sciences. Special attention will be directed to these analytical techniques in relation to data collection procedures in Sociology.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Evening division: Lectures and workshop four hours a week.

H. McRoberts

Anthropology 54.371 ★

Anthropological Linguistics

A review of theory and methods of anthropological linguistics. Emphasis will be on the interdependence between language and culture. The study is undertaken on a comparative basis and includes both preliterate and literate groups.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, Second term: Lectures and discussion three hours a week.

S. Jones

Anthropology 54.372 ★

Psychological Anthropology

A cross-cultural study of certain psychological processes such as cognition, learning and perception; an examination of the interdependence between culture and personality.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, First term: Lectures and discussion three hours a week.

Summer 1975, Day division: Five hours a week.

Anthropology 54.373 ★

Urban Anthropology

This seminar will enable students to pursue their interests in contemporary urban studies from the viewpoint of urban anthropology. Students will do individual research projects on an urban group of their choice and

the different findings will then be compared and contrasted with contemporary urban anthropological theory and ethnography. Original participant observation of urban groups is encouraged where possible.

Prerequisite: Sociology-Anthropology 56.100, or equivalent, or permission of the instructor.

Day division, Second term.

Sociology-Anthropology 56.391 ★ and 56.392 ★

Course-Related Tutorials

See explanatory note on p. 197.

Sociology 53.400

Sociological Analysis

An advanced examination of approaches and problems in the comparative analysis of social structure and social process. The course is specifically intended for senior students with little or no background in sociology.

Prerequisite: Third- or Fourth-year Honours standing or Qualifying year graduate standing or permission of the instructor. Majors and Honours students and Combined Majors and Honours students within the Department may not take this course for credit toward their degree.

Not offered 1975-76.

Anthropology 54.410

The Ethnographic Enterprise

An examination of the premises underlying particular cases of empirical work in Anthropology. The value of various anthropological paradigms for the solution of standard ethnographic problems.

Prerequisite: Final-year Honours standing, or permission of the instructor.

Day division: Seminar two hours a week.

H. Feit

Anthropology 54.430

Culture and Communication

A study of animal and human communication (verbal and non-verbal) systems; the relation of these to other social and cultural phenomena. Contrasts between oral and written traditions, between myth in non-literate societies and mass media in urban societies, and the content of contemporary "popular culture" are examined.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division: Seminar two hours a week.

V. Valentine

Sociology 53.443

Sociology as Social Intervention

An examination of the uses of Sociology in social criticism and social policy. Illustrative cases will be drawn from the broader ranges of sociological thought, certain areas of the substantive literature and the work of individual sociologists. In the examination of these materials, principal consideration will be given to their actual and potential role in criticism and policy formation, as well as to the criteria by which this type of contribution may

be assessed.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division: Seminar two hours a week.

M. Frumhartz

Sociology 53.445 ★

The Study of Total Societies

An examination of modern societies as total systems with particular reference to their more significant modes of variation. Consideration is given both to the available theoretical models and to selected empirical cases.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division, First term: Seminar two hours a week.

D. Olsen

Sociology 53.450 ★

Advanced Research Methodology

An advanced study of specific methodological or statistical problems in social research. Students are expected to participate in a seminar project in which the topic will vary from year to year. Among the topics which may be included are: secondary data analysis, elite interviewing, participant and other modes of observation, construction of attitude scales and multivariate analysis.

Prerequisite: Sociology-Anthropology 56.200, or Sociology 53.370, or permission of the instructor.

Seminar two hours a week.

Sociology 53.451 ★

Substantive Demography

An application of demographic models to the study of the interrelations of demographic and other phenomena. Students are expected to apply demographic techniques and conceptual frameworks to the investigation of a substantive problem.

Prerequisite: Sociology 53.351 ★ or permission of the instructor.

Evening division, Second term: Seminar two hours a week.

Sociology 53.456 ★ (53.455 ★)

Selected Problems in Urban Studies

An intensive examination of one or more problems in the general area of urban studies, such as the role of urban planners, grass-roots movements in urban communities, ecological and other environmental phenomena associated with urban growth.

Prerequisite: Final-year Honours standing or permission of the instructor.

Evening division, Second term: Seminar two hours a week.

Sociology 53.461 ★ (53.460 ★)

Selected Problems in the Study of Deviance

A critical examination of current theory and research on some specific type of deviance, such as crime, sexual

deviance, non-medical drug usage, mental illness, political corruption, etc. Topic for 1975-76: Sociology of Mental Illness. Seminar focusing on: theories of etiology favouring socio-cultural factors; epidemiological methods and findings; societal reactions; mental hospitals as organizations; the structure and effectiveness of psychotherapeutic intervention.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division, Second term: Seminar two hours a week.

H. Burshtyn

Sociology-Anthropology 56.465 ★

Selected Problems in the Study of Ethnic and Race Relations

An intensive examination of certain aspects of ethnic and race relations and conflict as they relate to the concept of plural society, to the revival of ethnic and racial prejudice against recent immigrants to post-industrial societies and to the emergence of ethnic consciousness and nationalism. Topic for 1975-76: National Unity and Multiculturalism. A critical examination, from a sociological and anthropological perspective, of governmental multicultural policies, in order to determine the extent to which these policies promote or impede national unity. Students will be encouraged to study a number of multicultural countries and their policies, but special attention will be paid to Canada.

Prerequisite: Final-year Honours standing or permission of the instructor.

Evening division, First term: Seminar two hours a week.

V. Valentine

Anthropology 54.470

Indians and Eskimos of North America

A survey of the prehistory, physical and cultural characteristics of Indian and Eskimo people. Social and cultural changes and the contemporary situation will be studied with special emphasis on groups in the northern part of North America.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division: Seminar two hours a week.

Summer 1975, Day division: Ten hours a week.

Anthropology 54.475 ★

Contemporary Problems in Anthropology

Topic for 1975-76: to be announced.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division, First term: Seminar two hours a week.

Anthropology 54.476 ★

Contemporary Problems in Anthropology

Prerequisite: Final-year Honours standing or permission of the instructor.

Not offered 1975-76.

Sociology 53.485 ★

Contemporary Problems in Sociology

Topic for 1975-76: to be announced.

Prerequisite: Final-year Honours standing or permission of the instructor.

Day division, First term: Seminar two hours a week.

Sociology 53.486 ★

Contemporary Problems in Sociology

Prerequisite: Final-year Honours standing or permission of the instructor.

Not offered 1975-76.

Sociology 53.490, 53.491 ★ and 53.492 ★

Anthropology 54.490, 54.491 ★ and 54.492 ★

Tutorial in Sociology or Anthropology

Courses designed to permit a student to pursue his interests in a selected area of sociology or anthropology. The student prepares papers as the basis for discussion with his tutor.

Prerequisite: Final-year Honours standing and permission of the Chairman.

Tutorial hours arranged.

Sociology 53.495, Anthropology 54.495

Honours Practicum

At the end of their final year Honours candidates are required to present a major research essay. For Honours students in Anthropology, and for those Honours students in Sociology who choose this option, this requirement is met through the Practicum. Students present their essay proposals for discussion and criticism to fellow students and faculty and report periodically upon the paper's progress. Common problems of conceptualization, research design, analysis and interpretation are taken up for consideration.

Prerequisite: Final-year Honours standing.

Day division: Seminar two hours a week.

G. Neuwirth, V. Blundell

Sociology 53.498

Honours Essay

At the end of their final year Honours candidates are required to present a major research essay. For Honours students in Sociology the Honours Essay, carried out under a faculty supervisor, is one way of meeting this requirement. Early in the year and in consultation with the Co-ordinator of Honours (Sociology), the student selects or is assigned a supervisor. The student is orally examined upon the Essay after its submission.

Prerequisite: Final-year Honours standing.

Hours arranged.

Graduate Courses

Final-year Honours students are encouraged to take one or more graduate seminars which are available to them with the permission of the instructor. In particular, their attention is drawn to the following:

- 54.504 Ecological Anthropology
- 53.509 ★ The Philosophy of Social Science I
- 54.512 ★ North American Ethnography
- 54.513 ★ Sub-Saharan African Ethnography
- 53.520 ★ Comparative Social Systems
- 53.524 ★ Sociology of Science and Technology
- 53.526 ★ Sociology of Occupations and Professions
- 53.527 ★ Sociology of Formal Organization
- 53.530 ★ Social Institutions I
- 53.531 ★ Social Institutions II: Education
- 53.540 ★ Political Sociology
- 53.580 ★ Power and Stratification

Courses Offered at St. Patrick's College

Sociology

- 08.100 Principles of Sociology
- 08.110 Principles of Anthropology
- 03.206 Principles of Sociological Theory and Methodology
- 08.210 ★ Social Psychology
- 08.218 ★ Assumptions of Social Psychology
- 08.230 Social Systems of Non-Western Societies
- 08.241 The Family and Society
- 08.245 ★ Social Stratification
- 08.246 ★ Canadian Social Structure
- 08.250 Population Studies
- 08.255 Sociology of Deviance
- 08.260 ★ Community
- 08.270 Criminology
- 08.301 ★ Contemporary Sociological Theory
- 08.306 ★ The Sociological Tradition
- 08.307 ★ Methods of Social Research
- 08.315 ★ Sociology of Education
- 08.341 ★ Organizational Behaviour
- 08.350 Political Behaviour
- 08.360 French Canadian Society
- 08.371 ★ Ethnic Groups
- 08.373 ★ Correctional Policy
- 08.375 ★ Medical Sociology
- 08.377 ★ Sociology of Welfare Institutions
- 08.380 Social Policy
- 08.385 ★ Sociology of Religion
- 08.388 ★ Selected Topics in Sociology
- 08.390 ★ Independent Studies in Sociology

Course Offerings in the Department of Sociology and Anthropology

Principles	56.100						53.400
Theory and Methods	56.200			56.305 53.300 53.370 54.310			53.443 53.450 *
Societies	56.248			56.320			53.445 *
Ethnography	54.230			(54.330) 54.362			54.410 54.470
Institutions and Organizations	56.215 56.241 53.245 53.246 *			53.312 * 53.315 53.352 * 53.355 54.331 * 54.332 * 54.333 * 54.334 *			
Social Differentiation and Change	56.235			56.340 56.360 53.345 * 53.347 *			56.465 *
Social Psychology Micro-processes	53.210 53.240 53.255 *			54.372 *			53.461 *
Language and Communication	(54.200)(54.201*)(54.202 *)			54.371 *			54.430
Demography and Ecology	56.253 * 53.251 * 53.254 * 54.206 * 54.207 * 54.208 * 54.225			(53.335) 53.351 * 54.373			53.451 * 53.456 *

The chart is intended as a guide to students in their selection of courses and programs. The courses offered by the Department are arranged, according to their principal emphasis, into the several fields or areas which, together, reflect the Department's interests and capabilities. (Since most courses have other aims as well, they can be grouped under more than one heading.) The courses are also arranged by level and by discipline—Sociology-Anthropology (56), Sociology (53) and Anthropology (54). Courses in parentheses are those offered outside the Department which students may apply to their Departmental requirements.

In this way students may be helped to identify some of the similarities and differences among courses, as well as their possible interconnections. Students are urged to choose courses with an eye both to their complementarity and their diversity.

Courses Planned for Summer School and Evening Division

Summer 1976 (tentative)

Day: 56.100, 54.208 ★, 53.210, 54.230, 56.235, 56.241, 54.310, 53.315, 53.345 ★, 53.347 ★.

Evening: 56.100, 56.200, 53.246 ★, 56.248, 53.255 ★, 08.270, 53.300, 54.331 ★, 54.332 ★, 56.340.

Subsequent years' courses appearing in italics will be offered every summer, in either Day or Evening division, with each course alternating year by year between Day and Evening divisions. The introductory course (Sociology-Anthropology 56.100) will be given every summer in both divisions.

Every summer one of the required theory courses will be given, alternating between day and evening divisions. Other offerings will depend upon Departmental capabilities and student interest and demand. A variety of types and levels of courses will be offered each year.

Fall-Winter Session Evening Division

The introductory course (Sociology-Anthropology 56.100) is offered every year in one or more sections.

One of the required methods courses (56.200 and 53.370) and one of the required theory courses (53.300, 56.305 and 54.310) will be offered in every Evening session. The specific courses will rotate year by year, so that each of the methods courses will have been offered in the Evening over a two-year period and each of the theory courses over a three-year period.

A number of other courses will be offered with some frequency as well, depending upon Departmental capabilities and student interest and demand. In any given year an attempt will be made to ensure a variety of types and levels.

Institute of Soviet and East European Studies

For details of program offered by the Institute see pp. 68-70.

Courses Offered

Soviet Studies 55.400 ★

Aspects of Eastern Europe

An interdisciplinary seminar in aspects of the study of Eastern Europe with specific content dependent on the current emphasis and resources of the program of the Institute. Recommended for the Institute of Soviet and East European Studies Honours students.

Day division, First term.

Soviet Studies 55.401 ★

Aspects of Eastern Europe

See description of Soviet Studies 55.400 ★.

Day division, Second term.

Soviet Studies 55.402 ★

Aspects of Eastern Europe

See description of Soviet Studies 55.400 ★.

Day division, April-June 1975.

Soviet Studies 55.490

Tutorial in Soviet and East European Studies

Prerequisite: Permission of the Institute.

Soviet Studies 55.498

Honours Essay

Prerequisite: Permission of the Institute.

Soviet Studies 55.500

Interdisciplinary Seminar on the Soviet Union and Eastern Europe

Prerequisite: Permission of the Institute.

Department of Spanish

Officers of Instruction

Chairman

R.L. Jackson

Assistant Chairman

J.M. López-Saiz

Co-ordinator, St. Patrick's College

A. Lozano

Supervisor of Language Courses

J. Yalden

Supervisor of Honours and Majors

J.M. López-Saiz

Supervisor of Graduate Studies

J. Jurado

Director of Winter Program in Spain

F. Hernández

Professor

J. Jurado

Associate Professors

F. Atienza

R.L. Jackson

R. Larson

A. López-Fernández

C.A. Marsden

A.W. Urrello (*St. Patrick's College*)

Assistant Professors

F. Hernández

J.M. López-Saiz

A. Lozano (*St. Patrick's College*)

P.J. Roster, Jr.

Janice Yalden

Teaching Associate

M.A. Giella

Sessional Lecturers

P. Arenas

Lorraine Hernández

T. Hutchinson

Janet Kilroy

N. Nómez

Denise Papillon

María Esther Pennefather

Heather Ross

Helen Wilson

General Information

The Department offers both Major and Honours programs. Classes are generally conducted in Spanish, and laboratory instruction, an integral part of courses at the 15 and 100 levels, is available to students in the more advanced language courses.

The Department offers Elementary and Intermediate Portuguese when there is a sufficient number of interested students.

A list of prescribed texts and supplementary reading for all courses beyond the 100 level is available from the Secretary of the Department.

The prefix 38 denotes the courses given in Division 1; 06 those at St. Patrick's College.

Students are encouraged to take advantage of the favourable atmosphere for informal practice of the language provided by CASA, the Hispanic-American Students' Association.

Acceleration and Intensive Spanish

Students who are beginning the study of Spanish at university, and who are considering Spanish as a Major, should take note of Spanish 38.102, Intensive Introductory Spanish (two credits), 38.101, Intensive Intermediate Spanish, designed specifically for potential Majors, and the Intensive Spanish program, a year which includes a term abroad, devoted exclusively to the study of Spanish (see below). They are also urged to accelerate their progress, when possible, by taking Summer courses.

Summer Session and Evening Offerings

The Department normally offers language courses (Spanish 38.015, 38.100, 38.201★, 38.202★, 38.301★, 38.302★) through the 300 level in the Evening division during the year (38.301★, 38.302★ Summer Evening) and during the Summer session, either Day or Evening. In addition, the Department offers Spanish 38.210 annually in the Evening division and has as well a system of rotation that ensures the offering of a different literature course at the 300, 400 and 500 levels each year in the Evening. The Department also offers a 400-level literature course every Summer.

Study Abroad

The Department has established the policy of giving conversation courses every Summer alternately in Spain and a Latin American country. In addition, the Department has established a Winter Program Abroad, Second

term (see below).

Intensive Spanish Program and Winter Program in Spain

The Intensive Spanish Program is a year including a term in Spain devoted exclusively to the study of Spanish. The program is divided into two terms: First and Second. During the First term the Intensive Language Program (up to two and half credits) is designed for in-course or new students with little or no Spanish. This half of the program, full details of which are given on p. 220, is offered on the St. Patrick's College campus.

During the Second term the program will be held in Spain, where students will continue their studies by taking another two and a half compressed courses in Spanish.

Courses available abroad are:

Spanish

- 38.202 ★ (06.252 ★) Spanish Composition
- 38.210 (06.231) Hispanic Civilization
- 38.301 ★ Advanced Spanish Conversation
- 38.302 ★ Advanced Spanish Composition

The program requires fifteen class hours a week plus regular field trips. Attendance is compulsory, subject to the usual exceptions.

In 1975-76, the program will run in Spain from January to mid-April; classes will be held at the Autonomous University of Barcelona.

The cost of the Program, including university fees and room and board, is approximately the same as a similar period of full-time study spent at Carleton, plus air fare.

Admission Requirements

Admission to the Winter Program Abroad (Second term) is limited to students who have completed (a) the Intensive Spanish Program, First term or (b) have a credit in a 100-level Spanish course and Spanish 38.201 ★ (06.242 ★) or the equivalent.

Second or Third year Spanish Majors who wish to take only this second half of the program are advised to take Spanish 38.201 ★, 38.303 ★ and three other half-courses from those available in other disciplines during the First term. Non-Majors wishing to enrol in the program should not only consult the Department of Spanish concerning the program, but also their Major departments (chosen or intended) to arrange a Major program which will permit the necessary absence from Ottawa.

Interested students should apply to Professor F. Hernández, Director of the Program Abroad (Winter session, Second term), Spanish Department, preferably not later than October 15, 1975.

A detailed brochure describing the Program Abroad and possible financial assistance is available from the Department and will be forwarded on request.

Major Programs

Interested students must consult with the Department as early as possible to plan their program. General requirements are as laid down on pp. 52-57 of the Calendar. A Major in Spanish normally consists of five courses after Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132); Spanish 38.210 is compulsory, and the three literature courses at the 300 level must be taken. A Combined Major will consist of four courses beyond the 100 level, to include Spanish 38.210 and two literature courses at the 300 level.

Minimum Requirements for Majors and Honours

The Department requires Majors and Honours students to have a minimum of C— in each required literature course at the 300 or 400 level or an average of C overall in these courses.

Honours Programs

Honours in Spanish

General regulations concerning Honours courses are to be found on pp. 58-59. The Honours course in Spanish is designed to give the student a thorough knowledge of Hispanic language and literature. Lectures and seminars cover the origins and evolution of the language, the principal periods of Spanish and Spanish American literature, and include some study of allied literatures in view of further work at the graduate level. The program consists of eight courses after Spanish 38.100 (or equivalent) to include Spanish 38.210, the three literature courses at the 300 level and at least two literature courses at the 400 level. For an explanation of Honours standing see p. 59.

Combined Honours in Spanish and French

This program is recommended especially for students wishing to enter a Faculty of Education in one of the Ontario Universities after completion of the B.A. with a view to becoming a language teacher in a secondary school. Six courses after the 100 level are required in each language. Required courses in Spanish are 38.210, two literature courses at the 300 level and at least one literature course at the 400 level.

Other Combined Honours Programs

Students interested in pursuing an Honours program in which Spanish is combined with another subject are invited to discuss the matter with the Supervisor of Honours in the Department of Spanish. The minimum requirements would be six courses after the 100 level in Spanish, to include Spanish 38.210, two literature courses at the 300 level and at least one literature course at the 400 level.

Graduate Courses

Students in Fourth year Honours may take a maximum of two courses at the 500 level with special permission of the Graduate Studies Committee of the Department of Spanish. These courses are listed separately in the Graduate Studies and Research Calendar.

St. Patrick's College Major Programs

The regulations governing these programs are listed under the St. Patrick's College section, p. 217. Students from St. Patrick's College who consider it possible that they may later wish to transfer to an Honours program in the Main Campus are advised to become familiar with the general regulations concerning Honours courses in Spanish.

Prerequisites

All students wishing to enrol in a course for which they do not have the prerequisites must obtain the permission of the appropriate departmental supervisor.

Courses Offered

Spanish 38.015

Introductory Spanish

A course for those with no knowledge of Spanish, designed to give the student the fundamentals of spoken and written Spanish, through oral practice, reading and laboratory work.

Day and Evening divisions: Lectures and laboratory four hours a week. Also offered in Intensive Spanish program: First term, St. Patrick's College.

Janice Yalden, members of the Department

Spanish 38.100

Intermediate Spanish

A course for those with at least one year of Spanish. Grammar review, extensive reading, guided composi-

tion, laboratory work.

Prerequisite: Spanish 38.015 (or 06.030) or equivalent.

Day and Evening divisions: Lectures and laboratory four hours a week. Also offered in Intensive Spanish program: First term, St. Patrick's College.

Janice Yalden, members of the Department

Spanish 38.101

Intensive Intermediate Spanish

A course for potential Majors and for those with Grade 13 Spanish or equivalent. Review of grammar and some advanced syntax; extensive reading, discussion and composition. Laboratory work.

Prerequisites: Spanish 38.015 (or 06.030) or equivalent, and permission of the Department. With special permission of the Department students enrolled in this course may take simultaneously Spanish 38.201★.

Texts: Da Silva and Lovett, *A Concept Approach to Spanish (Grammar and Tape Manual)*; others to be announced.

Day division: Lectures and laboratory four hours a week.

J.M. López-Saiz, members of the Department

Spanish 38.102 (06.132)

Intensive Introductory Spanish (two credits)

A course designed for students with little or no knowledge of Spanish. Using an intensive audio-lingual approach to Spanish, students can attain in one year the level of proficiency and fluency normally gained in Spanish 38.015 (or 06.030) and 38.100 (or 06.130). Students not making satisfactory progress will be transferred to the regular introductory course (38.015 or 06.030).

Prerequisite: Permission of the Department.

Day division: Lectures and laboratory six hours a week.

P.J. Roster, members of the Department

Spanish 38.201★

Spanish Conversation

Conversation and discussion of current problems, supplemented by occasional written work.

Prerequisite: Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132) or permission of the Department.

Day and Evening divisions, First term: Three hours a week.

Also offered in intensive Spanish program: First term, St. Patrick's College.

M.A. Giella, members of the Department

Spanish 38.202★

Spanish Composition

A course designed to consolidate the linguistic knowledge attained in Spanish 38.100, and to inculcate the elements of a good Spanish style.

Prerequisite: Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132), or permission of the Department.

Day and Evening divisions, Second term: Three hours a week.

Also offered in Winter Program Abroad (Second term).
Janice Yalden, members of the Department

Spanish 38.210★

Hispanic Civilization

An introduction to the culture and civilization of Spain and Spanish America, including readings from their literatures.

Prerequisite: Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132), or permission of the Department.

Principal Texts: Ubieta, Reglá, Jover, Seco: *Introducción a la historia de España*; Loprete, *Iberoamérica*.

Evening division: Main Campus, three hours a week.

F. Hernández, A.W. Urrello

Also offered in Winter Program Abroad (Second term).

Spanish 38.235

An Introduction to Hispanic Theatre

A study of the theory and practice of dramatic production in Spain and Spanish America together with detailed analysis and interpretative reading of representative plays. Students in the course will be required to participate in the staging of a play.

Prerequisite: Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132), or permission of the Department.

Evening division: Three hours a week.

A. López-Fernández

Spanish 38.251

Introduction to Literary Analysis: Selected Readings from Spanish and Spanish American Literature

A course designed to introduce students to the study of literature through analysis of selected Spanish and Spanish American works.

Prerequisite: Spanish 38.100 (or 38.101 or 38.102 or 06.130 or 06.132), or permission of the Department.

Day division: Three hours a week.

P.J. Roster

Spanish 38.301★

Advanced Oral Spanish

An advanced sequel to Spanish 38.201★.

Prerequisite: Spanish 38.201★ or permission of the Department.

Day division, First term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

J. Jurado

Spanish 38.302★

Advanced Spanish Composition

An advanced sequel to Spanish 38.202★.

Prerequisite: Spanish 38.202★ or permission of the Department.

Day division, Second term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

C.A. Marsden

Spanish 38.303★

Spanish Phonetics and Phonology

A descriptive study of the sounds and sound patterns of Spanish. Practical exercises, written and oral. Recommended for teachers.

Prerequisite: Spanish 38.201★ and 38.202★, or permission of the Department.

Day division, First term: Three hours a week.

J. Yalden

Spanish 38.320 (06.340)

The Golden Age

Spanish literature of the sixteenth and seventeenth centuries. Study of the principal works and authors from *La Celestina* to *Calderón*.

Prerequisite: One of Spanish 38.210, 38.235 or 38.251, or permission of the Department.

Evening division: Three hours a week.

J.M. López-Saiz

Spanish 38.330 (06.350)

Modern Spanish Literature

Spanish literature of the nineteenth and twentieth centuries.

Prerequisite: One of Spanish 38.210, 38.235 or 38.251, or permission of the Department.

Day division: St. Patrick's College, three hours a week.

F. Atienza, J.M. López-Saiz

Spanish 38.350 (06.330)

Modern Spanish American Literature

Spanish American Literature since Independence (1810-1825). Reading and study of principal literary works of all types from most Spanish American countries.

Prerequisite: One of Spanish 38.210, 38.235 or 38.251, or permission of the Department.

Day division: Three hours a week.

A.W. Urrello

Spanish 38.402

Stylistics

An advanced course in the theory and practice of composition in Spanish, including also poetics.

Prerequisite: Spanish 38.302★ or permission of the Department.

Day division: Three hours a week.

A. López-Fernández

Spanish 38.415

Introduction to Medieval Literature

A study of representative texts from the earliest times up to the end of the fifteenth century.

Prerequisite: Spanish 38.302★ or 38.320, or permission of the Department.

Day division: Three hours a week.

F. Hernández, J. Jurado

Spanish 38.420

Cervantes

A study of Cervantes and his age with particular reference to *Don Quijote*.

Prerequisite: Spanish 38.320 or permission of the Department.

Not offered 1975-76.

Spanish 38.430

Modern Spanish Novel

Representative works of the nineteenth and twentieth centuries.

Prerequisite: Spanish 38.330 or permission of the Department.

Not offered 1975-76.

Spanish 38.435

Modern Spanish Theatre

Spanish theatre from L.F. Moratin to the present.

Prerequisite: Spanish 38.330 or permission of the Department.

Not offered 1975-76.

Spanish 38.440

Modern Spanish Poetry

Spanish poetry from Bécquer to the present.

Prerequisite: Spanish 38.330 or permission of the Department.

Evening division: Three hours a week.

A. López-Fernández

Spanish 38.450

Colonial Spanish American Literature

A study of the Colonial period of Spanish America through reading of major literary and historical works of the period.

Prerequisite: Spanish 38.210 or 38.350, or permission of the Department.

Not offered 1975-76.

Spanish 38.460

Twentieth Century Spanish American Novel

The characteristic works of the most noteworthy novelists of the first half of the twentieth century.

Prerequisite: Spanish 38.350 or permission of the Department.

Not offered 1975-76.

Spanish 38.470

Twentieth Century Spanish American Poetry

A study of the principal tendencies in twentieth century Spanish American poetry, with special emphasis on the social poetry of Rubén Darío, César Vallejo, Nicolás Guillén and Pablo Neruda.

Prerequisite: Spanish 38.350 or permission of the Department.

Day division: Three hours a week.

R.L. Jackson

Spanish 38.490

Seminar on a Special Topic

Designed for Honours students normally in their final year, or for Graduate students. Topic for 1975-76: Literature by writers of African descent in Spanish America.

Evening division: Three hours a week.

R.L. Jackson

Spanish 39.491

Special Studies

From time to time members of the Department will form small groups to study certain problems or aspects of Spanish literature in greater depth than they are covered in other courses. Interested students should consult the Department.

Not offered 1975-76.

Spanish 38.498

Research Essay

Bibliography, methods of research and a topic of literary criticism to be chosen in consultation with members of the Department. Open to Honours students in their final year and to Graduate students.

Prerequisite: Permission of the Department.

Not offered 1975-76.

Portuguese 38.016

Introductory Portuguese

A course designed to provide the student with the fundamentals of Portuguese grammar, a basic vocabulary and speaking knowledge of Portuguese. Students who have taken courses in other Romance languages should make considerable progress.

Not offered 1975-76.

Portuguese 38.106

Intermediate Portuguese

A course for those with at least one year of Portuguese. Grammar review, extensive reading, guided composition, laboratory work.

Prerequisite: Portuguese 38.016 or equivalent.

Not offered 1975-76.

Courses Offered at St. Patrick's College

Spanish

38.015 (06.030) Elementary Spanish (Intensive Spanish Program, First term)

38.100 (06.030) Intermediate Spanish (Intensive Spanish Program, First term)

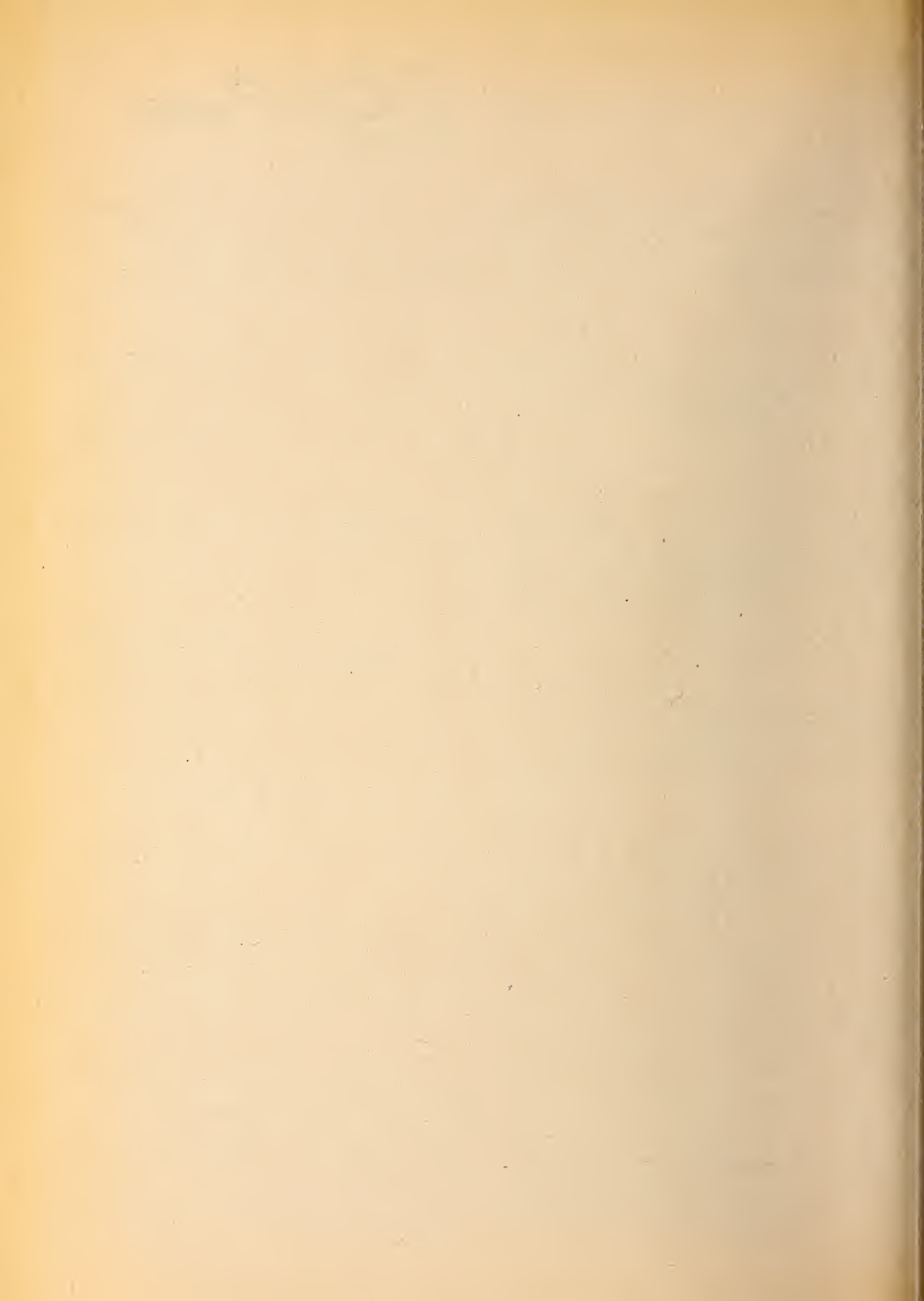
38.201 ★ (06.242 ★) Spanish Conversation (Intensive Spanish Program, First term)

38.202 ★ (06.252 ★) Spanish Composition (Intensive Spanish Program, Second term)

38.210 (06.231) Hispanic Civilization (Intensive Spanish Program, Second term)

38.330 (06.350) Modern Spanish Literature

Faculty of Arts
St. Patrick's College
Division



Officers of the College

Dean

Hugh A. MacDougall

Vice-Dean

William E. Walther

Faculty Registrar

Carolyn Richer

General Information

Saint Patrick's College, founded in 1932, was for thirty-five years affiliated with the University of Ottawa. On July 1, 1967, it became a division of the Faculty of Arts of Carleton University.

At the beginning of the 1973-74 academic year, the College occupied a new building on a site within the previously undeveloped portion of the Rideau River campus. It is hoped that this new situation will strengthen the incentive of faculty and student to develop unique approaches to learning in the liberal arts, while improving the access of our students to courses of instruction in the other divisions of the Faculty of Arts. Thus, while the small enrolment and the separateness of the facilities contained within the new building provides the advantage of a small campus, students and faculty are able to benefit from all resources of a large university.

Undergraduate instruction is offered in the humanities and social sciences. Three year Major degree programs are available in the following disciplines: Classics, Economics, English, French, History, Mathematics, Philosophy, Political Science, Psychology, Religion, Sociology and Spanish. In addition to the courses offered at the College, St. Patrick's students are free to take a wide range of courses offered in the main department, Faculty of Arts, and in other Faculties. Students interested in an Honours program are able at any time in the three year duration of the program to apply for a transfer to an appropriate program offered in the main department. Members of the faculty of St. Patrick's College, who are members of the academic staff of the University, have the special task of developing general programs of study in the liberal arts adapted to the needs of young men and women seeking a broad university education rather than intense specialization.

Admission Requirements

General information regarding admission requirements begin on p. 25. Enquiries regarding admission to St.

Patrick's College should be directed to the Admissions Office, Carleton University.

Registration Procedures

All students will be provided with academic counselling during the registration period. This will enable new students to discuss their degree programs with a Faculty Adviser before actual registration and it will ensure that returning students are satisfactorily completing degree requirements. Detailed information regarding the orientation and registration procedures will automatically be forwarded to all new and returning students of the College.

Once registered, students will make all course changes, withdrawals and program changes through the Faculty Registrar's Office.

Programs

The Bachelor of Arts degree programs are designed to provide opportunity for a liberal education with varying degrees of specialization. Three options are open to the student.

1. The B.A. program with a Major;
2. The B.A. program with a Combined Major;
3. The General B.A. program.

One of these programs will be chosen by the student, normally at the beginning of Second year.

To graduate in any of the foregoing programs, the student must pass at least eight courses beyond the 100 level, and must obtain a C- or better in at least one half of his courses in First, Second and Third years. All First year students must choose from courses open to First year.

If a student elects to Major in a subject given chiefly in the main department then the requirements to be followed for such a Major are those of the department as a whole.

Major Program

The program requires some degree of specialization within one discipline. The student will take from five to seven courses in his declared Major subject (from First to Third years) including any individual courses required by the discipline. An average of at least C- must be maintained in courses within the Major subject. The program, including courses in other subjects, will be

chosen in consultation with professors in the Major discipline.

To enter Third year of a Major program a student must have at least a C- average in the courses of his Major or Majors, and must also comply with any additional requirements of his program. A student below the required standing at the end of the year prior to his graduation may have to withdraw from his Major.

Combined Major Program

This program permits greater breadth within the framework of a Major program in that the student specializes, to a lesser degree than in the Major program, in two disciplines. It is normally preferable to work in two related disciplines, but the student is free to choose combinations that best suit his needs, abilities and inclinations. The student will take four courses in each of the disciplines (from First to Third years) including any required courses for a Combined Major in those disciplines. An average of at least C- must be maintained in the subjects in each discipline. The program including courses in other subjects will be chosen in consultation with professors of both Major disciplines.

General Arts Program

This program permits the greatest degree of breadth in course selection. No specialization in any discipline, or disciplines, is required; however, a somewhat better overall performance than in the Major programs is demanded. The following regulations regarding the General B.A. program should be noted:

1. The student must declare his intention to obtain a General Bachelor of Arts Degree before the completion of his last five credits.
2. All students in the program will be required to complete at least one 300-level course at St. Patrick's College.
3. Those students transferring into the General B.A. program from another university or from another faculty or division within the University will be required to complete at least five courses from the St. Patrick's College offerings listed in the Calendar.
4. The student must have an average of at least C- in all courses taken for the degree.

Although the student is free to choose any pattern of courses that complies with the general regulations, he is encouraged to plan a program seriously and intelligently in consultation with the General Program Committee.

Honours Program

Students interested in taking an Honours degree and wishing to enrol at St. Patrick's College must:

1. Indicate their intention to take an honours degree;
2. Have their programs approved by the appropriate departmental honours adviser.

Degree Requirements

Candidates for the Bachelor of Arts degree will take a total of twenty full courses or equivalent after Junior Matriculation (Ontario Grade 12) or fifteen full courses or equivalent after Senior Matriculation (Ontario Grade 13).

Regulations regarding course load, promotion, supplements and graduation requirements are outlined on pp. 55-57.

Summer Session

Students wishing to register for summer courses must obtain a letter of permission from the Faculty Registrar's Office to ensure that their summer program meets Major and overall degree requirements.

Qualifying University Year

A student selects five courses chosen from those numbered 010 to 099 and 100 to 199 but may select no more than two courses of the 100 to 199 group. The further restriction on this latter selection is that the student must have the prerequisites, if any, of the 100 to 199 group (e.g. English 02.100 or 02.162 may not be taken without previously passing English 02.010 or Ontario Grade 13 English).

Students are warned that if they hope to select in a later year a course that has a prerequisite from Qualifying University year or Ontario Grade 13, they must plan their program to include these prerequisites.

Courses open to Qualifying University year students:
English 02.010
French 06.010
History 03.010
Mathematics 00.010
Spanish 38.015 (06.030)

Two courses only may be chosen from the following list provided prerequisites, if required, have been taken:
Art 03.111, 03.211, 03.311
Classics 05.110
Economics 01.100, 01.101, 01.130 (only one of 01.100 or 01.101 can be taken for credit)

English 02.100, 02.101, 02.102, 02.162
 French 06.100, 06.104
 History 03.101
 Mathematics 00.101
 Philosophy 07.110, 07.120
 Political Science 01.110
 Psychology 04.100
 Religion 09.100, 09.120
 Sociology 08.100, 08.110
 Spanish 38.100 (06.130)

Courses requested outside this listing require the permission of the instructor.

First Year

Three programs are available:

1. First year of the Unified Liberal Arts Program,
2. The First year French Language Program,
3. The Intensive Spanish Program,
4. Regular five course program.

Unified Liberal Arts Program

The purpose of the program is to foster and develop the intellectual life of the participant by means of an integrated approach to the study of selected themes of continuing concern to man.

This approach to learning is "unified", not simply because it seeks to explore these themes from the points of view of different disciplines, but more importantly because it seeks a genuine involvement in the different processes of intellectual enquiry: individual and group study, readings, lectures, discussions, seminars, panels, tutorials, essay and independent research projects.

The program is spread over a three year period. The First year is equivalent to four of the student's five credits; the Second year to three credits; the Third year (independent study) to one credit. The total three year program comprises eight of the fifteen required credits for the Bachelor of Arts degree. With his seven remaining credits the student is free to pursue a Major program or to select any combination of courses for a General B.A.

Although the Program is designed to be an eight-credit unit spread over three years, it is possible to take either the First year, four credit unit, or the Second year, three credit unit alone. The Second year of the Program is a prerequisite for the Third year, independent studies unit. There is a maximum enrolment of thirty students in First

and Second years, and students who have completed the First year are given priority in registering for Second year.

Since the success of the program depends ultimately on the development of a community of scholars, maximum participation is required of everyone in the program. Attendance at the scheduled meetings is, therefore, essential.

The topic for First year, is "Freedom and Order", for Second year, "The Nineteenth Century Revolution". The Third year involves intensive independent/tutorial study culminating in essays on a topic chosen by the student in consultation with a member of the ULAP staff.

See also "Interdisciplinary Studies", p. 236.

French Language Program

The French Language Program is a year devoted exclusively to the study of French. Many students take six to nine French courses during a three year period as part of the requirements for a Bachelor of Arts degree. Nevertheless, concentrated practice during one academic year will prove especially profitable. The program combines course offerings in French, in order to make possible intensive study of the language during one academic year.

Program

The student's program will comprise five full courses. It is built around a nucleus of *two compulsory language courses*.

06.204 An advanced course in oral French.

06.222 An advanced course in written French.

Two other courses will be chosen from the undermentioned offered in 1975-76.

06.100 An introduction to the literature of France (unless taken previously). (This is a required course for students at the First year level.)

06.227 French Canadian literature of the twentieth century

One French course chosen, after consultation with the French staff, from others offered at St. Patrick's College or in the French Department, Division I.

Admission Requirements

Second year students enrolling in the program should have a C+ standing in French 06.100 (and/or 06.104); students taking the French Language Program in their First year should have 70% in Ontario Grade 13 French or the equivalent level of French.

Students enrolling in the program will thus be able to (a) complete up to five of the six required courses for a Major in French (b) complete some courses that may be counted towards an Honours program if they wish later to specialize in French.

Intensive Spanish Program

The Intensive Spanish Program is a year devoted exclusively to the study of Spanish. The program will be divided into two terms: First term and Second term.

First Term: Language Acquisition

The First term of the Intensive Spanish Program, to be offered on the St. Patrick's campus is designed to provide a maximum of acceleration in language acquisition to well-motivated students with little or no previous training in Spanish. While aimed at the beginning student, the program is flexible enough to accommodate students who have already completed Grade 13, Spanish 38.015, 06.030 or the equivalent.

The full First term covers the following courses:
 Spanish 38.015 (06.030) Beginning Spanish;
 Spanish 38.100 (06.130) Intermediate Spanish; and
 Spanish 38.201 ★ (06.242 ★) Spanish Conversation.

Students may enrol in any course unit of this program for equivalent credit. Similarly, they may withdraw from the program, in exceptional cases, after each unit, receiving equivalent credit after successful examination for work done.

This program entails fifteen hours of class per week plus language laboratory instruction and practice for a total of up to two and one-half credits.

During the First term students will be charged with the responsibility of spending, together with the other members of the program, as much time as possible outside the classroom under the guidance of a "group leader" (a senior student in Spanish), who will encourage them to practise whatever material they are being exposed to in class, and who will organize drill sessions and other activities for the purpose of reinforcing what the students are learning during regular classroom hours. After successful completion of the First term, students have the option of joining the Second term of the Intensive Spanish Program or enrolling in up to two and a half credits in the subjects of their choice.

Second Term: Language and Civilization

The Second term of the program will be held in Spain, where students will continue their studies by taking another two and a half compressed courses in Spanish (38.210 and 38.202 ★) or their equivalents, (06.231 and

06.252 ★), plus 38.301 ★ and 38.302 ★.

For further information on the Second term program, see p. 251.

Admission Requirements

Students entering the Intensive Spanish Program at the First year level should have C+ in Ontario Grade 13 or in Spanish 38.015 (06.030) or equivalent. Those enrolling in the Second term should have a C+ in a 100 level Spanish course. Students with little or no background in Spanish may have to be tested for aptitude for intensive training in Spanish.

Regular Five Course Program

First Year

In making a selection of First year courses a student should bear in mind the field or fields that he will be choosing as an area of concentration and make sure that the prerequisite courses are taken as far as possible in the First year. Students are free to choose First year courses from among the following:

Art

- 03.111 Art of the Ancient World
- 03.211 European Art from 313 A.D. to 1500 A.D.

Classics

- 05.110 Greek and Roman Civilization
- 05.202 History of Comedy and Satire

Economics

- 01.100 Principles of Economics
 - 01.101 Contemporary Economic Issues
 - 01.130 Introductory Accounting
- (Only one of 01.100 or 01.101 may be taken for credit.)

English

- 02.100 English Authors, Chaucer to Eliot
- 02.101 English and Continental Texts
- 02.102 Form and Tradition
- 02.162 Twentieth Century Literature

French

- 06.100 A General Introduction to French Literature
 - 06.104 Langue et littérature du XXe Siècle
- (Other French courses with permission of the French staff.)

History

- 03.101 Introduction to Modern History

Mathematics

- 00.101 Introductory Mathematics
- 00.151 Part II A New Approach to Calculus

Philosophy

- 07.110 Themes in History of Philosophy
- 07.120 Social and Political Philosophy
- 07.201 ★ Logic
- 07.210 Ancient and Early Modern Philosophy: Plato, Aristotle, and Descartes
- 07.266 ★ Personal Ideals and Lifestyles

Political Science

- 01.110 Introduction to Political Science
- 01.275 International Politics (with permission)
- 01.285 Contemporary Political Problems

Psychology

- 04.100 Introductory Psychology
- 04.208 Foundations of Psychological Research
- 04.210 ★ Social Psychology
- 04.218 ★ Assumptions of Social Psychology
- 04.228 The Biological Basis of Behaviour
- 04.258 Child Psychology
- 04.268 The Person and His Behaviour: Theories of Human Conduct and Cognition

Religion

- 09.100 Introduction to World Religions
- 09.120 Introduction to the Bible

Sociology

- 08.100 Principles of Sociology
- 08.110 Principles of Anthropology

Spanish

- 38.015 (06.030) Elementary Spanish
- 38.100 (06.130) Intermediate Spanish
- 38.240 (06.240) Spanish American Revolutionary Literature in Translation

Second and Third Years

A total of ten courses is required, five in each year: a minimum of four of these are to be in the student's Major (five, if one is not taken in First year). The others are to be chosen with the approval of professors of the Major discipline.

Students in Third year who wish to transfer to an Honours program are expected to consult with the chairman of the department as well as the Co-ordinator of the Major discipline at St. Patrick's College and then to make formal application on a form obtainable at the Registrar's Office, St. Patrick's College before March 1.

Students completing the Major requirements for a particular discipline at St. Patrick's College will be accepted into the Honours program of the main department provided that they declare their intention to do so early in their Third year and consult both the co-ordinator for the discipline at St. Patrick's College and the adviser for the Honours program.

Course of Studies in Social Policy

Students wishing to pursue a course of studies in Social Policy may choose either a Major program or a Combined Major program in Economics, Law (Combined Major only), Political Science, Psychology or Sociology. Such a course of studies involves the application of the social sciences to the analysis and formation of public policy. Students are likely to find that a Combined Major in these disciplines is a constructive way to overcome the specialist-generalist dilemma. Offerings relevant to the Social Policy course of studies are listed below. Detailed information regarding requirements and offerings may be obtained from the Vice-Dean, St. Patrick's College.

Economics

- 01.101 Contemporary Economic Issues
- 01.236 Development of the Welfare State
- 01.325 Canadian Economic History
- 01.330 Social Economics
- 43.101 Contemporary Economic Issues
- 43.210 Aggregate Economic Theory and Policy
- 43.335 Political Economy in the Modern State
- 43.358 Organization Theory
- 43.365 ★ The Economics of Planning

Political Science

- 01.110 Introduction to Political Science
- 01.255 Canadian Government and Politics
- 01.285 Contemporary Political Problems
- 01.350 Public Administration
- 01.376 ★ Parties and Pressure Groups in the Canadian Polity
- 01.377 ★ Electoral and Legislative Behaviour in the Canadian Polity
- 47.200 Canadian Government and Politics
- 47.300 ★ Provincial Government and Politics
- 47.301 ★ Intergovernmental Relations
- 47.302 ★ Canadian Municipal Government
- 47.303 ★ Canadian Urban Politics
- 47.304 ★ Political Parties and Elections in Canada
- 47.340 Canadian Public Administration

Psychology

- 04.258 Child Psychology
- 04.268 The Person and His Behaviour: Theories of Human Conduct and Cognition
- 04.308 The Analysis of Individual Behaviour
- 04.354 ★ Adulthood
- 04.357 ★ Old Age
- 04.358 Psychology of Adolescence
- 04.364 ★ Abnormal Behaviour
- 04.365 ★ Criminal Behaviour
- 04.366 ★ Addiction
- 04.367 ★ Behaviour Disorders of Childhood
- 04.391 ★ Practicum in Community Psychology
- 04.392 ★ Practicum in Community Psychology
- 49.340 Personnel Psychology

Law

- 51.100 Introduction to Legal Studies
- 51.201 The Elements of Law
- 51.205 Introduction to Public Law
- 51.221 Consumer Law
- 51.234 Law and Antisocial Behaviour
- 51.284 Law of the Family
- 51.324 Tax Law and Policy
- 51.353 Civil Liberties and Human Rights
- 51.374 Local Government Law
- 51.380 Law of Environmental Quality

Sociology

- 08.241 The Family and Society
- 08.245 ★ Social Stratification
- 08.246 ★ Canadian Social Structure
- 08.250 Population Studies
- 08.255 Sociology of Deviance
- 08.260 ★ The Community
- 08.270 Criminology
- 08.315 ★ Sociology of Education
- 08.341 ★ Organizational Behaviour
- 08.350 Political Behaviour
- 08.360 French Canadian Society
- 08.371 ★ Ethnic Groups
- 08.373 ★ Correctional Policy
- 08.375 ★ Medical Sociology
- 08.377 ★ Sociology of Welfare Institutions
- 08.380 Social Policy

Course of Studies in Criminology and Corrections

Criminology is the multi-disciplinary study of criminal behaviour. The student may concentrate in Criminology while working toward a General B.A. or a B.A. with a Major. The student who wishes a concentration in Criminology but is not Majoring in Sociology or Psychology is well advised to meet the methodology requirements of Sociology or Psychology, i.e. Psychology 04.208 or Sociology 08.206, plus Sociology 08.207★.

Suggested course offerings include:

Law

- 51.234 Law and Antisocial Behaviour

Psychology

- 04.364 ★ Abnormal Behaviour
- 04.365 ★ Criminal Behaviour
- 04.366 ★ Addiction
- 04.391 ★ Practicum in Community Psychology
- 04.392 ★ Practicum in Community Psychology

Sociology

- 08.255 Sociology of Deviance
- 08.270 Criminology
- 08.373 ★ Correctional Policy

Additional courses of interest to a student concentrating in Criminology are listed within the course of studies in Social Policy and within the Psychology and Sociology sections of the course of studies in Social Science Theory.

The student who wishes to pursue each of the definitive courses should plan to complete the following courses within his first two years of study: Law 51.100, Sociology 08.100 or 08.110, Sociology 08.255 or 08.270 and two full credits in Psychology.

Course of Studies in Canadian Studies

Students wishing to pursue Canadian Studies within the traditional framework of Combined and single Majors programs must meet the usual requirements in their Majors. Beyond that there is a wide range of courses in the social sciences and history from which the student can choose to support his special interests. The choice should be made in consultation with the Co-ordinators of the disciplines involved over the three year period. For maximum exposure to Canadian Studies in the General B.A. program the Combined Major is recommended.

Courses in Canadian Studies

Economics

- 01.101 Contemporary Economic Issues
- 01.236 Development of the Welfare State
- 01.300 Labour Economics
- 01.304 Public Finance
- 01.325 Canadian Economic History
- 01.330 Social Economics
- 01.344 ★ History of Canadian Economic Thought

Sociology

- 08.241 The Family and Society
- 08.245 ★ Social Stratification
- 08.246 ★ Canadian Social Structure
- 08.360 French Canadian Society
- 08.371 ★ Ethnic Groups
- 08.373 ★ Correctional Policy

Political Science

- 01.110 Introduction to Political Science
- 01.255 Canadian Government and Politics
- 01.285 Contemporary Political Problems
- 01.350 Public Administration
- 01.376 ★ Parties and Pressure Groups in the Canadian Polity
- 01.377 ★ Electoral and Legislative Behaviour in the Canadian Polity

History

- 03.101 Introduction to Modern History
- 03.232 History of Canada
- 03.280 History of the United States since 1763

03.352 Selected Problems in the History of British North America, 1760-1867

Law

51.387 ★ Quebec Law
51.450 Canadian Constitutional Law

Course of Studies in Social Science Theory

Students seeking a broad understanding of all social sciences prior to selecting an area of specialization or who wish to acquire a General B.A. in the social sciences are advised to take fifteen of the following courses. To fulfill the normal requirements for a Combined Major, four full courses must be taken in each of the fields of the Major program.

Theoretical Studies in Social Science

Economics

01.100 Principles of Economics
01.200 Intermediate Microeconomic Analysis
01.210 Aggregate Economic Theory and Policy
01.344 ★ History of Canadian Economic Thought
43.415 History of Economic Thought

Sociology

08.100 Principles of Sociology
08.206 Principles of Sociological Theory and Methodology
08.301 ★ Contemporary Sociological Theory
08.306 ★ The Sociological Tradition

Psychology

04.100 Introductory Psychology
04.208 Foundations of Psychological Research
04.268 The Person and His Behaviour: Theories of Human Conduct and Cognition
04.308 Analysis of Individual Behaviour
04.378 Advanced General Psychology

Political Science

01.110 Introduction to Political Science
01.255 Canadian Government and Politics
01.265 Theory of Law and Politics
01.280 Political Philosophy
01.281 ★ Methods of Political Enquiry
01.366 ★ Contemporary Analytic Theory

Philosophy

07.200 Science and Man

Women's Studies

While they do not, as yet, form a complete program of studies, a variety of courses dealing with the role of women in society are offered at the College and within the University.

Interdisciplinary

04.288 Introduction to Women's Studies
04.388 Women: Selected Topics in Literature and Social History

Classics

05.344 (History 03.344) Women in Antiquity

History

03.354 Women and Society in Western Europe and North America 1700-1970

Law

51.301 ★ Women and the Legal Process

Psychology

49.361 ★ Psychology of Women

Religion

34.201 Women in Religious Traditions

School of Social Work

52.506A Special Topics: Status of Women

Art

Officers of Instruction

Assistant Professor
T. Swift

Sessional lecturer
L. Halpin

General Information

Three survey courses are offered, each dealing basically with the visual expression of Western civilization in the form of architecture, sculpture and painting. For students wishing to obtain some technical training, studio is available and may be substituted for the part of each course described as "special studies". "Special studies", an intensive study of a few significant aspects of art, comprise about one third of each course. Studio, which is concerned with the execution of projects in drawing and painting, is not a complete course and must be taken in conjunction with the art history survey portion to count towards academic credit. Standing is based partly on written examination.

At present the College offers only a Combined Major in Art: that is, the three courses listed below together with one Art History course given in the Art History Department, Division I. Arrangement must first be approved by the Co-ordinator of Art at St. Patrick's College. A full Major in Art History is offered in the Art History Department, Division I.

Courses Offered

Art 03.111

Art of the Ancient World

A survey of the art of Egypt, Mesopotamia, Crete, Greece and Rome during the period 3000 B.C. to 313 A.D. with an option of either special studies or studio.

Evening division: Three hours a week.

T. Swift

Art 03.211

European Art from 313 A.D. to 1500 A.D.

A survey of European art from 313 A.D. to 1500 A.D. with an option of special studies or studio.

Day division: Three hours a week.

T. Swift

Art 03.311

European Art from 1500 to the Present

A survey of European art from 1500 to the present with an option of special studies or studio.

Not offered 1975-76.

Studio

1. Two or more of the following historical techniques: tempera, fresco, Eyckian oil and Venetian oil. This program is offered during the day and repeated during the evening. All students taking studio in 1975-76 will follow this program.

Three hours a week.

L. Halpin

2. Elements of design.
Not offered 1975-76.

3. Nineteenth and twentieth century developments in drawing and painting.
Not offered 1975-76.

Classics

Officer of Instruction*Assistant Professor**R. Jeffreys***General Information**

Classics is the traditional name given to the study of ancient Greece and Rome. Ancient Greece was a seminal period in man's intellectual and artistic development. Rome absorbed Greek culture, added her own contribution and made Greco-Roman culture the basis of Western civilization. The classical period, then, is worth studying both for its own sake and for the immense influence it has exercised on later periods including the present.

It is recognized that few students are now able to study Greek and Latin in sufficient depth to permit appreciation of the literature in the original. It would be unfortunate if familiarity with classical culture were confined to so narrow a group. Many aspects of ancient civilization can be fruitfully discussed without a knowledge of Latin and Greek, and none of the courses offered at St. Patrick's College requires this knowledge. A language requirement is, however, laid down for Majors.

Major in Classical Civilization

A student wishing to Major in Classical Civilization should take at least six courses in this field. The courses offered at St. Patrick's College are varied from year to year to make this possible. Philosophy 07.210 is also an eligible course. In addition, the student is asked to demonstrate a reading knowledge of Greek or Latin.

Combined Major

Classical Civilization is a very suitable subject to study as a Combined Major with such subjects as English, French, History, or Religion. Four courses in Classical Civilization are required.

Courses Offered

Classics 05.110

Greek and Roman Civilization

An introduction to the culture of ancient Greece and Rome. Aspects of the literature, history, art, religion and philosophy of classical antiquity will be discussed.

Day division: Lectures and discussions three hours a week.

R. Jeffreys

Classics 05.202

History of Comedy and Satire

A critical examination of the comic and satiric in literature from the classics (read in English) to the contemporaries. The theory and practice of comedy in various forms. Types, techniques and themes of satire. The influence of Greek and Roman authors on English writers of comedy and satire. (Also listed as English 02.202.) Day division: Lectures and discussions three hours a week.

R. Jeffreys, T. Nolitt

Classics 05.230

History of Rome

Not offered 1975-76.

Classics 05.235

History of Greece until the Roman Conquest

Not offered 1975-76.

Classics 05.310

Greek and Roman Drama

Not offered 1975-76.

Classics 05.315

Epic and Novel In Ancient Greece and Rome

Not offered 1975-76.

Classics 05.342

Social Problems in Antiquity

Not offered 1975-76.

Classics 05.344

Women in Antiquity

A study of women in antiquity, primarily in Greece of the Classical and Hellenistic periods and in Rome of the late Republic, early Empire and the early Christian period. The course will concentrate on the role of women (and the various conceptions of that role) in society, both within and without the family; and some consideration will be given to "types" of women that appear in literature. (Also listed as History 03.344.)

Evening division: Lectures and discussions three hours a week.

R.C. Blockley

Economics

Officers of Instruction

Co-ordinator

R.F. Neill

Associate Professors

G.E. Clarke

R.F. Neill

Sessional Lecturers

B.J. Bryson

R. Moores

H.V. Walker

General Information

The program in Economics at St. Patrick's College is designed to enable the student to acquire a reasonably broad understanding of the discipline. Certain "core" courses, listed below, are required courses for Majors and Combined Majors. Other courses offered allow the student to select for intensive study those areas which interest him. The overall program is generally slanted in the direction of political economy, that is, the institutional background to and the policy implications of specific areas of economic study. (See Economics 01.300, 01.236, 01.325, 01.330.)

Major in Economics

Students who Major in Economics must take a minimum of six courses in the discipline. In addition they must obtain credit in Mathematics 00.101 or an equivalent course. A student's program must include Economics 01.100 or 01.101 and 01.200, 01.210, 01.220, and two other courses in Economics. Accounting 01.130 may be taken for credit but will not count in the total of six required courses.

Combined Major in Economics

If a student elects a Combined Major, one of which is Economics, he is required to take a minimum of four courses, Economics 01.100 or 01.101, 01.200, and two other courses in Economics.

Honours Program

Students intending to enter the Honours program in Economics must include a 400-level Economics course in their Major program. These students are strongly advised to consult with the Supervisor of Honours Studies in Economics.

Courses Offered

Economics 01.100

Principles of Economics

This course provides a concise and fairly rigorous introduction to key theoretical concepts of economics. These concepts are developed with a view to being applied to Canadian economic problems such as unemployment and inflation, monopoly control, international trade and foreign ownership, poverty and the distribution of income. The policy implications of these various problems are also discussed.

This course cannot be taken for credit if 01.101 has been taken.

Evening division: Lectures three hours, discussion one hour a week.

H.V. Walker

Economics 01.101

Contemporary Economic Issues

A discussion of various Canadian economic problems such as unemployment and inflation, monopoly control, international trade and foreign ownership, poverty and the distribution of income. The policy implications of these various problems are discussed. A number of theoretical concepts are developed as the need arises. A student who has taken Economics 01.101 and obtained a grade of C- or better will be permitted to Major in Economics after the completion of prescribed additional readings in Economics.

This course cannot be taken for credit if Economics 01.100 has been taken.

Day division: Lectures three hours, discussion one hour a week.

R. Neill

Economics 01.101 M

Contemporary Economic Issues

Economics 01.101 M is a self-paced Modular section of Economics 01.101. The Resource Centre (Room 311 St. Patrick's) will be open on Saturdays, commencing the first Saturday after classes begin.

Economics 01.101 S

Contemporary Economic Issues

January Admission, six hours a week, Spring term, registration at St. Patrick's College

Economics 01.130

Introductory Accounting

An introduction to basic accounting systems involving the use of double entry bookkeeping. A study of the theory of the basic accounting equation. An analysis of the various books of original entry and their relationship to control ledgers and the preparation of periodic financial statements. The form and content of financial statements of retail and manufacturing concerns with emphasis on sole proprietorship and partnership operations. An introduction to corporate organization and

operation, the preparation, analysis and interpretation of financial and other accounting statements; basic cost accounting concepts.

Evening division: Lectures three hours a week.

B. Bryson

Economics 01.200

Intermediate Micro-Economic Theory

The modern analysis of production and distribution with special reference to the determination of the conditions which maximize social welfare. The major causes of departure from the social welfare optimum in a full employment economy with particular attention to imperfections in competition.

Prerequisite: Economics 01.100 or 01.101.

Day division: Lectures three hours a week.

G. Clarke

Economics 01.210

Aggregate Economic Theory and Policy

An examination of modern macro-economic theory with special reference to domestic and international monetary theory. A survey of Canadian and international financial institutions and arrangements. A critical examination of macro-economic problems and policies.

Prerequisite: Economics 01.100 or 01.101.

Evening division: Lectures three hours a week.

R. Neill

Economics 01.220

Statistical Methods in Economics

An introductory course comprising collection and presentation of data, frequency distributions, measures of central tendency, dispersion and skewness, sampling errors and results, correlation, index numbers, time-series analysis.

Not offered 1975-76.

Economics 01.236

Development of the Welfare State

An examination of social security legislation and of the social and demographic conditions which gave rise to legislation. The industrial conditions of the nineteenth century and the depressed conditions of the 1930's will be especially noted. The Beveridge report in England and the Marsh report in Canada will be seen as major influences leading to existing social security arrangements in Canada in the 1970's. The strengths and weaknesses of existing programs, and some of their macro- and micro-economic effects will be examined.

Prerequisite: Economics 01.100, 01.101 or Sociology 08.100. Students are advised to take this course as a preliminary to Economics 01.330.

Day division.

G. Clarke

Economics 01.300

Labour Economics

An introduction to labour economics covering topics such as North American unionism and collective

bargaining, comparative trade unionism, the economics of wages, public policy issues in a Canadian context.

Prerequisite: Economics 01.100 or 01.101.

Evening division: Lectures two hours a week.

R. Moores

Economics 01.304

Public Finance

Public expenditures and their relations to economic activity; public revenues; principles of taxation; public borrowing and the public debt; fiscal policy; federal-provincial fiscal arrangements.

Prerequisite: Economics 01.100 or 01.101.

Not offered 1975-76.

Economics 01.320

International Economics

A study of international economic relations including foreign exchange markets, theories of international trade, balance of payments, trade controls, Canadian trade policy and problems, international investment and monetary problems, and international financial institutions.

Prerequisites: Economics 01.100 or 01.101 and 01.200 or 01.210.

Not offered 1975-76.

Economics 01.325

Canadian Economic History

The development of national economic policy in Canada. The evolution of policies to bring about economic growth, regional redistribution and favourable external trade, from the beginning of settlement to the present time.

Prerequisite: Economics 01.100 or 01.101.

Day division: Lectures and/or seminars two hours a week.

R. Neill

Economics 01.330

Social Economics

An examination of some of the ways in which public authorities attempt to reshape the economic environment towards a greater conformity to social values. The objectives and practice of social security schemes, housing policy, "the war on poverty" etc. will be considered.

Prerequisite: Economics 01.100 or 01.101.

Day division: Lectures two hours a week.

J.B. Davis, A. Maslove

Economics 01.343

Special Studies in Canadian Economics

Contents of this course varies year by year, topics to be determined by the instructor invited to offer the course.

Prerequisite: Economics 01.100 or 01.101.

Day division.

Economics 01.344 ★

History of Canadian Economic Thought

The course summarizes and analyses the literature produced by Canada's response to the economic conditions of a satellite state. It is an account of the economic theories and policies that have characterized the frontier in its protest against metropolitan power, from Pierre Boucher in the seventeenth century to Melville Watkins in the twentieth.

Text: C.D.W. Goodwin, *Canadian Economic Thought*.

Prerequisite: An introductory course in Economics, Canadian History or Canadian Politics.

Summer 1975, Evening division, First term: Lectures three hours a week.

R. Neill

English

Officers of Instruction

Co-ordinator

J.R. Morrison

Professor Emeritus

L.A. Cormican

Associate Professors

K. O'Donnell

S.C. Russell

M. Ryan

Assistant Professors

A.A. MacKinnon

J.R. Morrison

T. Nollitt

J. Noonan

General Information

The study of literature in English is both professional and liberal. It is a preparation for such professions as teaching, journalism, communications, creative writing. It is also interdisciplinary by offering an introduction to the English-speaking world and to literatures in other languages, and by presenting aspects of psychology, philosophy, religion, political and social history. The general aim of English courses at St. Patrick's College is to develop a disciplined capacity to read, to write, to evaluate, and thereby discover personally the main focus of the liberal arts program: man's continuing interest in human nature as it expresses itself in different individuals, societies, periods.

Major Program

English Majors will take (a) one course in English open to First year students, preferably 02.162 (b) 02.232 (c) 02.352 or approved equivalent(s) (d) three other courses after approval by a member of the discipline at St. Patrick's College.

To Major, a minimum of C- is required in a First year course. Thereafter, a minimum average of C- must be maintained in English courses. Students who have taken no English in their First year may Major only by special permission.

Majors must declare themselves to the Registrar's Office by the beginning of their Second year.

Combined Major Program

Combined Majors will take a minimum of four English courses, preferably one each of drama, fiction and poetry.

Honours Program

Students intending to proceed to the Honours degree in English will (a) Major in English; (b) discuss their program with the Honours advisers at St. Patrick's College, and in the Department of English, Division I; and (c) fulfill the requirements for entering Fourth year Honours (See p. 58.)

Prerequisites

1. English 02.010 or equivalent is a prerequisite for other courses in English.
2. Except for English 02.387, which lists the prerequisite under the course description, the prerequisite for Second and Third year courses is a First year course in English or permission of the instructor.
3. A minimum of C- is required in a First year course in order to Major in English.

Note: Courses open to First year students: English 02.100, 02.101, 02.102, 02.162. For purposes of determining credit in the Major and Honours program of the main Department of English, courses are interchangeable.

Courses Offered

English 02.010

Introductory College Course

A general introduction to university English, fundamental principles of literary appreciation, and literary genres. Not offered 1975-76.

English 02.100

English Authors, Chaucer to Eliot

A general examination of the characteristics of English Literature from the fourteenth century to the present day. Not offered 1975-76.

English 02.101

English and Continental Texts

A study of works by English and Continental writers, including Dante, Boccaccio, Chaucer, Shakespeare, Shelley, Flaubert, Mrs. Gaskell, Tolstoy, O'Casey, E. Waugh. Not offered 1975-76.

English 02.102

Form and Tradition

A study of representative works in drama, fiction and poetry, stressing the nature and development of these literary forms. Poetry: Selections from traditional and modern. Drama: Marlowe, Webster, Shakespeare, Ibsen, Shaw, O'Neill, Ionesco, Williams, Chekhov, Miller. Novel: Fielding, Dickens, Bronte, Hardy, Lawrence, Faulkner,

Durrell.

Evening division: Lectures and discussions three hours a week.

A. MacKinnon

English 02.162

Twentieth Century Literature

This course is divided into three eight-week sections, poetry, drama, and novel, each taught by a different instructor. (a) Through thematic approaches, selected American, British, and Canadian poems are studied. This section of the course introduces students to the major influences and movements in poetry from Yeats, Pound, and Eliot through to Concrete Poetry in the 1970's. Some attention is also devoted to formalist, psychological, sociocultural, and archetypal criticism. (b) The object of the novella section is to sharpen the student's awareness of dominant literary forms and philosophical visions of life of representative modern and contemporary novelists. Major literary themes of the authors are compared and evaluated with a view to establishing trends in contemporary novels. Works of Dostoevsky, Tolstoy, Flaubert, James, Conrad, Mann, Lawrence, Kafka and Bellow will be discussed. (c) The aim of the eight-week section on drama is to introduce students to some of the forms that drama has taken in the twentieth century and to provide them with a basis for making some judgment of modern plays. A selection of prominent American, British, and European dramatists will be studied.

Day division: Lectures and discussions three hours a week.

A. MacKinnon, K. O'Donnell, M. Ryan

English 02.202

The History of Comedy and Satire

A critical examination of the comic and satiric in literature from the classics (read in English) to the contemporaries. The theory (N. Frye, Langer, Bentley) and practice of comedy in various forms. Types, techniques and themes of satire (Highet, Hodgart, Elliott). The influence of Greek and Roman authors on English writers of comedy and satire. (Also listed as Classics 05.202.)

Day division: Lectures and discussions three hours a week.

R. Jeffreys, T. Nolitt

English 02.204

Styles of Dramatic Performance

A study of selected plays representing the major genres of dramatic literature. Special attention will be given to analysis of these plays in relation to their performance. Portions or the whole of some plays included in the course will be rehearsed and presented by the class as part of the assigned work of the course.

Prerequisites: A First year course in English and permission of the instructor.

Not offered 1975-76.

English 02.232

English Studies I

Required course for Majors and intending Honours students. A study of the major authors from Chaucer to Pope with particular emphasis on Chaucer, Spenser, the sonnets of Shakespeare, Donne and the metaphysical poets, Ben Jonson, Pope and Swift.

Day division: Lectures and discussions three hours a week.

M. Ryan

English 02.236

Shakespeare

A general study of Shakespeare's work, including the Sonnets, and the development of dramatic techniques as represented in fifteen plays. A detailed study of *Romeo and Juliet*, *Richard II*, *Twelfth Night*, *King Lear*, *Antony and Cleopatra*, and assigned sonnets. Course requirements include the writing of three essays.

Recommended readings: Johnson, *Preface*; Clemen, *Shakespeare's Imagery*; Dean, Editor, *Shakespeare, Modern Essays in Criticism*.

Day division: Lectures and discussions three hours a week.

L. Cormican

English 02.248

Romanticism

A study of the major writers, including Wordsworth, Coleridge, Blake, Byron, Keats and Shelley, with a view toward gaining an intimate understanding of the premises of Romantic thought and the specific character of Romantic literary expression.

Not offered 1975-76.

English 02.252

Victorian Poetry and Prose

Selected readings in Carlyle, Dickens, Tennyson, Browning, Arnold, J.S. Mill, George Eliot, Thackeray, Newman, Ruskin, Morris, the Pre-Raphaelites, Swinburne, Meredith, Hopkins, Pater, Hardy, and the early Yeats.

Not offered 1975-76.

English 02.253

The Novel from Dickens to Conrad

A study of selected novels of the nineteenth century.

Day division: Lectures and discussions three hours a week.

A. MacKinnon

English 02.263

The Novel in the Twentieth Century

A study of American, British and Canadian fiction to 1970 by the following novelists: Amis, Brautigan, Buckler, Durrell, Faulkner, Fitzgerald, Ford, Fowles, Golding, Hemingway, Joyce, Kroetsch, Margaret Laurence, D.H. Lawrence, Maugham, Nin, Richler, Vonnegut, West, Woolf.

Day division: Lectures and discussions three hours a week.

A. MacKinnon

English 02.272

American Literature

A study of the development of the American tradition in literature: the major writers, including Emerson, Thoreau, Hawthorne, Melville, Whitman, Mark Twain, Emily Dickinson, Henry James, Crane, Dreiser, Sherwood Anderson, F. Scott Fitzgerald, Hemingway, T.S. Eliot and Wallace Stevens.

Not offered 1975-76.

English 02.282

Canadian Literature

A study of the development of Canadian literature in English with emphasis on major writers of the nineteenth and twentieth centuries.

Prerequisite: A First year course in English.

Day division: Lectures and discussions three hours a week.

K. O'Donnell

English 02.300

Criticism

A study of the theory and practice of criticism from Aristotle to the present day. Seminar course, taken normally only in the Third year. The course includes exercises in practical criticism.

Text: Bate, *Criticism, The Major Texts*

Not offered 1975-76.

English 02.303

The English Novel

Reading: Elizabethan and Jacobean novels; Defoe, *Moll Flanders*; Richardson, *Pamela*; Smollett, *Humphrey Clinker*; Fielding, *Tom Jones*; Sterne, *Tristram Shandy*; Goldsmith, *Vicar of Wakefield*; J. Austen, *Pride and Prejudice*; Scott, *Midlothian*; Thackeray, *Vanity Fair*; Eliot, *Adam Bede*.

Text: James, *The Art of the Novel*.

Not offered 1975-76.

English 02.304

Drama Survey

History and theory of the drama from the Greeks to the moderns. Some attention will be given to the practical aspects of drama.

Prerequisite: A First year course in English.

Not offered 1975-76.

English 02.322

Middle English including Chaucer

A study of the language and literature of England from the twelfth to the fourteenth century.

Not offered 1975-76.

English 02.332

Literature of the Renaissance

The main characteristics of the Renaissance. The Continental Renaissance and its influence in England. The poetry of the Renaissance (1500-1660) to be selected from Hebel and Hudson, *Tudor Poetry and Prose*; Spenser, *Faerie Queene, Books I, II, and III*, *The Mutability Cantos*, *The Fower Hymnes* and other shorter poems; Shakespeare, *Sonnets*. The prose of the Renaissance; Selections from Hebel and Hudson.

Text: Hebel and Hudson, *Tudor Poetry and Prose*.

Not offered 1975-76.

English 02.337

Prose and Poetry of the Seventeenth Century

A study of the main trends in English literature from Bacon to Marvell excluding drama.

Texts: Witherspoon and Warnke, *Seventeenth Century Prose and Poetry*; Kenner, *Seventeenth Century Poetry*.

Evening division: Lectures and discussions three hours a week.

M. Ryan

English 02.342

English Literature from Dryden to Johnson

A detailed study of the major authors of the period 1660 to 1780 in relation to their social milieu. Selections from the works of Butler, Wycherley, Congreve, Pepys, Dryden, Swift, Gay, Pope, Johnson, Boswell and Sheridan will be read, their beliefs and critical principles examined and compared.

Not offered 1975-76.

English 02.352

English Studies II

Required course for Majors and intending Honours students. An intensive study of major authors from Blake to Eliot.

Day division: Lectures and discussions three hours a week.

K. O'Donnell

English 02.361

Poetry and Criticism from Hopkins to Auden

A study of the criticism and poetry of the modern period with particular emphasis on such writers as G.M. Hopkins, Yeats, Pound, Eliot, Dylan Thomas, Wallace Stevens and other American writers whose work has appeared in the first half of the twentieth century.

Not offered 1975-76.

English 02.364

Modern Drama

A study of the major European and American dramatists and dramatic movements from Ibsen to present. Some attention will be given to the practical aspects of drama.

Prerequisite: A First year course in English.

Not offered 1975-76.

English 02.367

Contemporary Texts

Studies in selected longer poems by American, British, and Canadian writers. Attention will be devoted to certain major influences and trends since the Second World War.

Prerequisite: A First year course in English.

Not offered 1975-76.

English 02.368

Studies in the Novel After World War II

A study of American, British, and Canadian novels with an emphasis on such factors as time, memory, the dream, and form. Some novels studied are Lowry's *Under the Volcano*, Ferlinghetti's *Her*, Murdoch's *Bruno's Dream*, Nin's *Cities of the Interior*, Pynchon's *V*, Nabokov's *Invitation to a Beheading*, and Durrell's *Alexandria Quartet*. Students will be expected to do assigned readings in such areas as cubism, surrealism, Freud, Jung, and relativity.

Not offered 1975-76.

English 02.387

Selected Topic in Canadian Literature

A seminar on a particular topic of Canadian studies.

Prerequisite: English 18.282, or standing as an English Honours or Major student.

Not offered 1975-76.

English 02.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*. Such themes as alienation, dread, subjectivity, freedom, authenticity, and death will be explored in selected works* by major authors, including Hölderlin, Leopardi, Kierkegaard, Dostoevsky, Nietzsche, Tolstoy, Rilke, Kafka, Conrad, Hesse, Ionesco, Beckett, Sartre, and Camus. Attention will also be given the philosophic basis and literary antecedents of the existentialist posture.

*All assigned readings will be in English. (Also listed as Interdisciplinary 04.390.)

Prerequisite: A First year course in literature or an introductory course in Philosophy.

Day division: Lectures and discussions three hours a week.

S.C. Russell

English 02.393

English Prose from Early Times to the Present Day

Prerequisite: A First year course in English.

Not offered 1975-76.

French

Officers of Instruction

Co-ordinator

J.J. Kelly

Professor

J.J. Kelly

Associate Professor

O. Condemine

Assistant Professor

J. Kealey

General Information

The knowledge of a second language remains a valuable asset in the modern world. A knowledge of French as a second language is particularly desirable in Canada. Undergraduates enrolling in First year in an Ontario university have already some knowledge of the French language, acquired at the primary and secondary levels. The aims of the French staff at the university level are as follows:

1. To consolidate the knowledge already acquired of the French language; to correct deficiencies in both the spoken and written language; and to provide opportunities for further practice. At the present time, some emphasis is placed on the spoken language since many undergraduates display weakness in this area.

2. To provide an interesting and stimulating cultural experience for the undergraduate. At the university level this is the important aspect of the study of French; it is in keeping with the idea of a "liberal arts" education. The student is introduced to the literature, to the thought and to the culture of France and of French Canada. In this manner the study of French becomes an integral part of a university education.

The pursuit of these two aims, practice of the language and pursuit of cultural values, are closely intertwined.

Major Program

A student wishing to Major in French should take French 06.100, obtaining a standing of C — or better. He will take also a minimum of five additional courses at the Second and Third year levels including at least one course at the 300 level.

The choice of the five courses at the Second and Third year levels will be made in consultation with a member of the French staff. Students who have taken a French course other than French 06.100 may qualify as French Major (or Honours) students by fulfilling special require-

ments as laid down by the Department. Students may take one or both of French 06.204 and 06.222. Students having French 06.204 and/or 06.222 are excluded from French 06.205 and vice versa.

Combined Major Program

A student wishing to take French as part of a Combined Major should take French 06.100, obtaining a standing of C — or better. He will take also three other courses at the Second and Third year levels, including at least one course at the 300 level. The choice of courses will be made in consultation with a member of the French staff. Students may take one or both of French 06.204 and 06.222. Students having French 06.204 and/or 06.222 are excluded from French 06.205 and vice versa.

Honours Program

Students intending to apply for admission to the University's Fourth year Honours program in French should consult a member of the French staff regarding the requirements of the Department, which include two courses in another language (German, Italian, Spanish, Russian or Latin).

French Language Program

See p. 219.

Courses Offered

French 06.010

Cours de langue française

A study of the French language based on audio-oral principles. Emphasis is placed on oral comprehension and expression, without omitting the principles of written expression and comprehension. Attendance at all classes and laboratory sessions is compulsory.

Prerequisite: Permission of the instructor.

Day division: Four hours a week, including laboratory sessions. Enrolment limited to 20 students per section.

French 06.100

A General Introduction to French Literature

A general survey of the development of French literature from the Middle Ages to the end of the nineteenth century with special emphasis on representative works.

Day division: Lectures three hours a week plus one hour of oral practice.

O. Condemine

French 06.104

Langue et littérature du XXe siècle

Intensive study of selected contemporary works of France and of French Canada. Review of grammar. Emphasis will be placed on improving language skills

through discussion groups, laboratory work and grammatical drills.

Not offered 1975-76.

French 06.110

Cours de langue française

A study of the French language based on audio-oral principles. Emphasis is placed on oral comprehension and expression, without omitting the principles of written expression and comprehension. Attendance at all classes and laboratory sessions is compulsory.

Prerequisite: Permission of the instructor.

Day division: Four hours a week, including laboratory sessions. Enrolment limited to 20 students per section.

French 06.204

Cours avancé de français oral

Ce cours comporte des travaux de phonétique, des séances de conversation et des travaux de laboratoire. Course for students in the French Language Program.

Day division: Six hours a week comprising discussion and laboratory sessions.

O. Condemine, J.J. Kelly

French 06.205

Pratique orale et grammaire

Exercices de phonétique, séances de conversation, travaux de laboratoire; grammaire et travaux de composition.

Day division: Three hours a week.

J.J. Kelly

French 06.212

La littérature française du XVIII^e siècle

L'âge de la raison et de la sensibilité. La pensée philosophique des principaux auteurs (Montesquieu, Voltaire, Diderot, Rousseau) sera étudiée dans le contexte des valeurs intellectuelles, politiques, sociales et religieuses. Introduction à la littérature de la Révolution française. Les discussions et travaux feront ressortir les parallèles entre les préoccupations de ce siècle et celles de notre époque moderne.

Day division: Lectures and discussion three hours a week.

French 06.220

Histoire de la civilisation française

Survол des grandes étapes de la civilisation française suivi d'une étude plus approfondie de la vie matérielle, morale, intellectuelle et artistique de la France contemporaine.

Day division: Three hours a week.

French 06.222

Cours avancé de français écrit

Éléments de grammaire et notions de style. Travaux pratiques. Composition. Ce cours a pour but d'approfondir les connaissances de la grammaire française, d'introduire les notions de style et de développer la maîtrise de la langue écrite par des travaux de composition appliquée.

Course for students in the French Language Program.

Day division: Three hours a week.

French 06.223

Les grands écrivains français du XIX^e siècle

Vue d'ensemble des différentes tentatives pour renouveler la littérature au cours du XIX^e siècle. Examen du milieu historique, social et culturel qui les a vues naître. Etude de quelques oeuvres importantes.

Not offered 1975-76.

French 06.224

Culture et civilisation au Canada français contemporain

Une étude de la culture au Canada français depuis 1945.

Not offered 1975-76.

French 06.227

La littérature canadienne-française du XX^e siècle

Evolution du roman, de la poésie et du théâtre jusqu'à nos jours.

Day division: Lectures and discussion three hours a week.

O. Condemine

French 06.312

La littérature française du XVII^e siècle

Une étude des principaux écrivains du XVII^e siècle français.

Day division: Lectures and discussion three hours a week.

J.J. Kelly

French 06.314

Aspects de la littérature française au XX^e siècle

Not offered 1975-76.

French 06.320

Le Théâtre français

Not offered 1975-76.

French 06.325

Littérature et civilisation du Canada français

Etude de certains aspects de la civilisation et des principaux écrivains du Canada français de 1840 à 1960.

Not offered 1975-76.

History

Officers of Instruction

Co-ordinator
Joan Greatrex

Professors
David Chung
H.A. MacDougall

Associate Professors
Joan Greatrex
J.K. Johnson
Paul Merkley

Assistant Professors
Deborah Gorham
F.J.K. Griezic

General Information

The History program is concerned primarily with the development of the societies of Western Europe and North America though it also offers a limited opportunity for the study of Asian history. The courses range from an introductory survey to specialized seminars, and are designed to encourage the student to develop an increasing capacity for critical, analytical thought through an enhanced awareness of the uses and limitations of historical evidence. A majority of the courses, while reflecting some of the historian's traditional interest in the politics of the past, place their greatest stress on the underlying social and intellectual aspects of change in human society.

Major Programs

Major in History

Majors in History will take a minimum of six courses in History as follows:

1. the introductory course (History 03.101) normally in the First year;
2. at least one 200 level course normally in the Second year;
3. at least two 300 level courses normally in the Third year.

Combined Majors

Combined Majors in History will take a minimum of four courses in History as follows:

1. the introductory course (History 03.101) normally in the First year;

2. at least one 200-level course normally in the Second year;

3. at least one 300-level course normally in the Third year.

Honours Program

Students intending to apply for admission to the University's Fourth year Honours program in History are reminded that they must take three 300-level courses, one of which must be History 24.388.

Courses Offered

History 03.101

Introduction to Modern History

An examination of the events of two centuries (1500-1700). The purpose of the course is to establish some common ground of factual preparation and some exposure to the problem of interpreting the past by close examination of this period, the matrix of subsequent world history. This course is recommended for all students in First year.

Day division: Lectures and discussions three hours a week.

History 03.220

Our Medieval Heritage

England and France in the fourteenth and fifteenth centuries. A study of society and the state in the later medieval period.

Day division: Lectures and discussions three hours a week.

J. Greatrex

History 03.222

East Asian Civilization

Basic characteristics of traditional East Asian civilization in China, Korea and Japan. Main patterns of the Asian responses which emerged under the impact of the expanding West at the dawn of modern Asia from the seventeenth century to the early nineteenth century. Not offered 1975-76.

History 03.224

The Revolutionary Tradition in Europe, 1789-1848

Beginning with the French Revolution of 1789 the course includes such significant movements as romanticism, nationalism, the rise and implications of industrialism, and the development of socialist theory culminating in Marxism.

Not offered 1975-76.

History 03.232

History of Canada

A survey of Canadian history from 1763 to the present. See History 24.230 or consult the instructors.

Day division: Lectures and discussions three hours a week.

F.J. K. Griezic, J.K. Johnson

History 03.280

History of the United States since 1763

A survey of American history.

Evening division: Lectures and discussions three hours a week.

P. Merkley

History 03.310

Problems in the History of Ideas

A study of western intellectual history since the Renaissance, which considers developments such as humanism, the enlightenment, romanticism, Darwinism and contemporary ideologies.

Day division: Seminar three hours a week.

D.G. Bowen

History 03.320

Cathedral and Town

Urban life in England in the later Middle Ages. A seminar based on individual and group research into the history of selected English cathedral towns.

Prerequisite: History 03.220, or 24.105, or 24.205.

Day division: Seminar three hours a week.

J. Greatrex

History 03.325

Canadian Economic History

Offered as Economics 01.325.

History 03.334

The Revolutionary Tradition in Europe, 1848 to the Present

A continuation of History 03.224 with emphasis on revolutionary developments in Italy, Germany and Russia.

Not offered 1975-76.

History 03.335

Canadian Farm and Labour Movements since Confederation

A study of the organized responses to agrarian and industrial discontent.

Prerequisite: History 24.230 or 03.232.

Day division: Seminar three hours a week.

F.J.K. Griezic

History 03.344

Women in Antiquity

Offered as Classics 05.344.

History 03.352

British North America, 1760-1867

Studies in the social and economic development of Canadian society before Confederation.

Prerequisite: History 03.232 or 24.230.

Day division.

J.K. Johnson

History 03.353

Canada since Confederation

Selected studies of social, economic and political problems, 1867-1957.

Prerequisite: History 03.232 or 24.230.

Not offered 1975-76.

History 03.354

Women and Society in Western Europe and North America, 1700-1970

An examination of the changes that have taken place in the position of women since the eighteenth century and the relationship of these changes to other social, economic and intellectual developments.

Not offered 1975-76.

History 03.358 ★

Violence and Corruption in Canadian History

A thematic examination of various types of violence and corruption that occurred in the development of the Canadian nation in the nineteenth and twentieth century.

Prerequisite: History 03.232 or 24.230.

Not offered 1975-76.

History 03.382

The United States since 1919

Prerequisite: History 03.280.

Not offered 1975-76.

Interdisciplinary Studies

Unified Liberal Arts Program

Officers of Instruction

S. Clarke (*Assistant Professor of Philosophy*)
J. Dourley (*Assistant Professor of Religion*)
P. Merkley (*Associate Professor of History*)
T. Nollitt (*Assistant Professor of English*)
J. O'Manique (*Associate Professor of Philosophy and co-ordinator*)
W. Walther (*Associate Professor of Psychology*)

ULAP-I: Four First Year Credits

Freedom and Order

The theme, "Freedom and Order", gives the student the opportunity to study in depth one of the most important of the perennial human problems, while at the same time opens up to his view vast areas of thought. Professors from different disciplines will work with the students in their study of Freedom and Order through the writings of psychologists (Freud, Skinner . . .), philosophers (Plato, Hobbes, Sartre . . .), revolutionary thinkers (Marx, Marcuse, Fanon . . .), literary figures (Sophocles, Dostoevsky, Kafka . . .), religious thinkers (Buber, Teilhard de Chardin . . .), with consideration of their historical contexts and interconnections. Those interested in ULAP-I should contact the co-ordinator of ULAP, or any ULAP staff member.

ULAP-II: Three Second Year Credits

The Nineteenth Century Revolution

ULAP-II examines the revolutionary precedents which gave rise to many of the problems exercising the contemporary mind. These precedents are examined from many viewpoints: philosophy and religious thought (Kant, Schleiermacher, Hegel, Feuerbach . . .) literature and drama (Blake, Chekhov, Strindberg, Flaubert . . .), psychology and sociology (Freud, Jung, Weber, Durkheim . . .), political thinkers (Jefferson, de Tocqueville, Marx . . .), and social commentators (Carlyle, Arnold . . .).

Prerequisite: ULAP-I or permission of the ULAP staff.

ULAP-III: One Third Year Credit

Independent Study

Prerequisite: ULAP-I or -II

For the general description of the program see p. 219.

Courses Offered

Interdisciplinary 04.202

The History of Comedy and Satire

Listed as English 02.202 and Classics 05.202.

Interdisciplinary 04.231

History of the Cinema

A study of the cinema as an art form, through an examination of major films and film directors from its beginnings to the present.

Lectures, discussions and screenings three hours a week.

Interdisciplinary 04.264

The Evolution of Latin America, Problems and Prospects

A study of the emergence and composition of Latin America's major institutions. Functional problems and proposed solutions will be explored.

Prerequisites: None. Open to First year students.

Not offered 1975-76.

Interdisciplinary 04.288

Introduction to Women's Studies

A survey course, designed to provide some answers to such questions as the functioning of sex roles in our own and other societies, and the nature and extent of biological and psychological sex differences; the course will also provide a general survey of woman's place in western history and literature, as well as a consideration of the way in which the academic disciplines of history, sociology, psychology and literature have approached the problem of women.

Prerequisites: This is an introductory course, to be taken by students in Second or Third years, and by First year students with the permission of the instructors.

Interdisciplinary 04.336

Great Periods of Film in their Social Context

An examination of such themes as German Expressionism, Hollywood during the Depression, Italian Neorealism.

Not offered 1975-76.

Interdisciplinary 04.388

Women

Selected topics in literature and social history.

Not offered 1975-76.

Interdisciplinary 04.390

The Literature of Existentialism

Listed as English 02.390.

Mathematics

Officer of Instruction*Assistant Professor*

M. Helfenstein

Combined Majors Programs

Students who wish to pursue a Combined Major in Mathematics should consult with the Mathematics staff. Four courses are normally required with a B – in Mathematics 00.101 or Part II of Mathematics 00.151.

Each year's program must be determined in consultation with the two departments concerned in the Combined Majors Program.

Courses Offered

Mathematics 00.010

Elementary Analysis

This course is offered as Part I of Mathematics 00.151. For contents, please see Mathematics 00.151, Part I.

Mathematics 00.101

Introductory Mathematics

Calculus: limits; derivatives; applications; special functions; partial differentiation; maxima, minima of functions of two variables; methods of integration; multiple integration; introduction to differential equations. Linear algebra. This course is intended for Arts and Commerce students who do not wish to major in Mathematics. (Also listed as Mathematics 69.101.)

Prerequisite: Mathematics 00.010, or 69.010, or part I of 00.151 or Grade 13 Mathematics.

Lectures three hours a week, one hour tutorial.

Mathematics 00.151 (2 credits)

A New Approach to Calculus

Part I (one credit, equivalent to Mathematics 00.010):

Function as a mapping. Second degree relations. Conic sections. Circular functions. Transformations. Sequences and limits. Derivatives. Applications of differentiation.

Part II (one credit, equivalent to Mathematics 00.101):

Calculus: limits; derivatives; applications; special functions; partial differentiation; maxima, minima of functions of two variables; methods of integration; multiple integration; introduction to differential equations. Linear algebra.

Prerequisite: Grade 12 Mathematics.

Course Load: The equivalent of two full University courses.

Recommended to students who need First year Mathematics (e.g. for Economics) but lack Grade 13 Mathe-

matics, older students who have not done any Mathematics for some years, students who have covered only part of Grade 13 Mathematics, students who have done especially well up to and including Grade 12 Mathematics and would like to continue at a faster pace, etc. Method: Independent guided reading and programmed learning combined with six tutorial hours a week. Students proceed at their own speed to the minimum level to be reached for credit in each part.

M. Helfenstein

Mathematics 00.257 ★

Problems in Statistics

Statistics as the science of decision-making with illustrations which include the following topics: probability theory, descriptive statistics, density functions, distributions, confidence intervals, use of t , χ^2 , F distributions, tests of hypotheses, introduction to regression analysis, sampling theory.

Prerequisite: Mathematics 00.101.

Not offered 1975-76.

Music

Courses Offered

Music 03.100

Introduction to the Music of Western Civilization

This course will provide a general perspective of musical history from the Renaissance to the present within the context of Western civilization. It will include a consideration of main trends and significant personalities and will also include the structural analysis of important musical forms.
Evening division.

Music 03.370

Canadian Music

A study of Canadian music from its earliest beginnings to the present, relating it to the North American scene.
Evening division.

Philosophy

Officers of Instruction

Co-ordinator

S.G. Clarke

Associate Professor

J.T. O'Manique

Assistant Professors

S.G. Clarke

D.E. Dubrule

B.I. Egyed

General Information

The Philosophy curriculum at St. Patrick's College has been designed with a view to three important aims of an undergraduate education: a familiarity with the history of ideas; an awareness of current socio-political problems; and an understanding of conceptual difficulties. Historically and critically oriented courses at all three levels which reflect these aims can be combined to form a coherent Major program or used to supplement programs in other disciplines. Interested students are encouraged to seek the advice of the Philosophy staff concerning the course offerings in Philosophy.

Major Programs

Major in Philosophy

Majors in Philosophy are required to take six courses in Philosophy to be chosen in consultation with a member of the discipline at St. Patrick's College. Not more than one 100-level course will be counted as credit for a Major.

Combined Majors

Combined Majors in Philosophy are required to take four courses, two of which must be on the upper year level.

Honours Program

Honours in Philosophy

Students who plan to apply for transfer to the Fourth year of the Honours program in the Philosophy Department, Division I, should consult the St. Patrick's College co-ordinator before the end of their Second year.

Courses Offered

Philosophy 07.110

Themes In History of Philosophy

This course is designed to familiarize the student with philosophical issues through historically influential writings. The development of a number of themes will be traced through the texts of major philosophers in the Western tradition. Among these themes will be the nature and extent of human knowledge, the validity of religious beliefs and moral values, the nature and destiny of man and the purpose and importance of philosophical thinking.

Not offered 1975-76.

Philosophy 07.120

Social and Political Philosophy

A study of some of the major contemporary social and political issues such as alienation, education, freedom, power and revolution. The historical and theoretical roots of these issues will be explored through the works of such classical philosophers as Locke, Spencer, Marx and Dewey. Contemporary figures to be considered will include: Fanon, Galbraith, Jaspers, Marcuse and Mills. Day division: Lectures and discussion three hours a week.

Philosophy 07.200

Science and Man

An examination of the scientific view of the world. The course will begin with a discussion of general topics in the philosophy of science such as revolutions in science, paradigms, objectivity, ideology, rationality, and the growth of scientific knowledge. Following this, specific philosophical issues in the science of man will be discussed, such as problems in perception, learning, and psychotherapy, the nature of some psychological concepts, problems in psychological research and method, and moral and political aspects of psychology. Day division: Lectures and seminars three hours a week.

Philosophy 07.201★

Logic

An introduction to the techniques and philosophical implications of formal logic with emphasis on the following issues: translation of expressions into symbolic form, formulation and application of the rules of valid inference, the relation between logic and language, and the nature of logical necessity.

Open to First year students.

Day division, Second term: Lectures and discussion three hours a week.

Philosophy 07.210

Ancient and Early Modern Philosophy: Plato, Aristotle and Descartes

A thorough examination of three major thinkers of the early history of philosophy: Plato, Aristotle and Descartes. Although emphasis will be placed on the meta-

physics, theory of knowledge, and psychology of these three philosophers, attention will also be given to the origins of philosophical speculation and to the influence of Plato and Aristotle on later Greek philosophy and the Latin Middle Ages.

Open to First year students.

Not offered 1975-76.

Philosophy 07.220

Marxism

The aim of this course is to show how Marxism is both a continuation and a radical critique of the Western philosophical tradition. After a detailed examination of the nature of dialectical materialism, some traditional philosophical problems will be discussed from a Marxist point of view. Such issues as the nature of man, the way he creates (materially and intellectually) his environment, the historical forces which condition him, and the nature of alienation will be viewed through the writings of nineteenth century and contemporary Marxists.

Day division: Lectures, discussions and seminars three hours a week.

Philosophy 07.230

Existentialism

This course is designed as an introduction to existentialism. Existentialism will be viewed as both an outgrowth of and a reaction to the philosophical thinking of its nineteenth century idealist predecessors, especially Hegel. An attempt will be made to show the relationship between phenomenology and certain existentialist thinkers. The course will try to bring out and clarify those basic concepts (the human situation, encounter, subjectivity, alienation, etc.) which help to define a philosophy as existentialist. The main philosophers to be examined will be Kierkegaard, Nietzsche, Sartre, and Heidegger, although some mention will also be made of Marcel, Jaspers, and Buber. The course will also include some "existentialist" literature.

Not offered 1975-76. (English 02.390 will be accepted for credit in place of this course.)

Philosophy 07.266★

Personal Ideals and Lifestyles

Problems of describing, analyzing and evaluating personal ideals and lifestyles will be investigated. Emphasis will be given to the works of Iris Murdoch and Albert Camus.

Open to First year students.

Day division, First term: Lectures and discussion three hours a week.

Philosophy 07.366★

Philosophies of Love

Philosophical theories of love will be studied with emphasis on their implications for understanding human nature and developing moral ideals.

Recommended background: Philosophy 07.266★

Day division, Second term: Lectures and discussion three hours a week.

Political Science

Officers of Instruction

Co-ordinator

Frederic Kirk, Jr.

Associate Professor

Frederic Kirk, Jr.

Assistant Professors

David Bellamy

Charles Schuetz

Sessional Lecturers

Hawley Black

Miloda Selucka

General Information

In harmony with the liberal arts tradition of St. Patrick's College, the Political Science section endeavours to fulfill a twofold purpose: to provide professional training in the field of Political Science and to permit students of other disciplines to round off their general education through a better knowledge and understanding of political matters.

To accomplish the latter purpose, less specialized and as a rule Canada-oriented courses are available. More specialized courses may be chosen in consultation with the Department.

Major Programs

Major in Political Science

Minimum of six courses including Political Science 01.110 (Introduction) with C- standing; (with the written permission of the co-ordinator, a student may, in special circumstances, substitute 01.285, Contemporary Political Problems, with B- standing); 01.255 (Canadian Government); and one full course credit at the senior 300 level.

Combined Major

Minimum of four courses including Political Science 01.110 with C- standing and 01.255. In the interest of acquiring a balanced perspective the student is encouraged to diversify his program by choosing at least one course from each of the main divisions of Political Science, i.e. political theory, comparative government and international relations.

Note: Such program diversification is essential for meeting the requirements and prerequisites for entry to the Honours or Graduate Program in Political Science. Students intending to go on to further study in Political

Science should consult with members of the Department early in their program.

Courses Offered

Political Science 01.110

Introduction to Political Science

An introduction to the three major areas in the discipline including political theory (normative and empirical), comparative government (theory and institutions) and international relations.

Day division: Lectures and discussions three hours a week.

Political Science 01.250

American Government

A study of the American political system: the theory and practice of the national government of the United States, the bureaucracy, political parties, interest groups, civil rights, and case studies of policies applied to cope with major national problems.

Prerequisite: Political Science 01.110.

Not offered 1975-76.

Political Science 01.255

Canadian Government and Politics

A study of Canadian constitutional development, contemporary Canadian political institutions and processes at the federal and provincial levels, federal-provincial relations in a changing Canada.

Prerequisite: Political Science 01.110.

Day division: Lectures and discussions three hours a week.

D. Bellamy

Political Science 01.260

Government and Politics in Western Europe

A study of the governments and politics of Great Britain, France, Italy and West Germany.

Prerequisite: Political Science 01.110.

Not offered 1975-76.

Political Science 01.265

Theory of Law and Politics

A study of various theories and institutions concerning the interrelated fields of law and politics. Several large topics will be studied in the light of treatment by prominent thinkers of western civilization. Topics such as the following will be covered; justice, natural law, state absolutism and positive law, anthropological and historical theories of law and society, civil obedience and the right to revolt. (Also listed as Law 51.210).

Prerequisite: An introductory course in either Political Science or Law or permission of the instructor. (Not to be taken for credit by students who have previously

taken Political Science 01.280)

Evening division: Lectures and discussions three hours a week.

D. Wayand

Political Science 01.266 ★

Communism: Government and Politics of the Soviet Union

A consideration of the basis of Communist theory. The practical aspects of the political experiment which has evolved from this theory in the Soviet Union. The impact on Eastern Europe of the Soviet experience.

Prerequisite: Political Science 01.110

Not offered 1975-76.

Political Science 01.267 ★

The Politics of Developing Areas

Political, social and economic evolution in the developing countries of Asia and Africa.

Prerequisite: Political Science 01.110, or permission of the instructor.

Not offered 1975-76.

Political Science 01.275

International Politics

The field of international politics studies the behaviour, strategies and possibilities manifested in the cooperation, interaction and clashes of states and their diplomatic representatives. The analytical focus of this course is the friendship-hostility continuum which covers the full range of international politics from conditions of peace to aggression and war. In particular, the course also aims at establishing the main trends of current international action and at demonstrating Canada's international involvement.

Prerequisite: Political Science 01.110, or permission of the instructor.

Not offered 1975-76.

Political Science 01.280

Political Philosophy

A survey of the principle features in the evolution of political theory from the ancient Greeks to the modern period. The most important thinkers are studied more intensively, especially Plato, Aristotle, St. Augustine, Machiavelli, Hobbes, Locke, Rousseau.

Prerequisite: Political Science 01.110, or permission of the instructor.

Not offered 1975-76.

Political Science 01.281 ★

Methods of Political Enquiry

An introduction to the systematic analysis of political phenomena through the application of basic statistical measures.

Prerequisite: Political Science 01.110.

Not offered 1975-76.

Political Science 01.285

Contemporary Political Problems

An examination of the grounds of the obligation to obey political regimes and of the various forms of political dissent. Such phenomena as civil disobedience, passive resistance, demonstrations, treason, rebellion and revolution will be examined. Special topics to be dealt with include: obligation and dissent in times of war; the dilemma of the draft resister, conscientious objector, deserter and prisoner of war; the Nuremberg war criminal trials.

No prerequisite: Open to First year students. Not open to students who have taken Political Science 01.110.

Day division: Lectures and discussions three hours a week.

M. Selucka

Political Science 01.350

Public Administration

An introduction to basic concepts in public administration. Particular reference will be given to the administrative structure of the Federal Government.

Prerequisite: Political Science 01.110.

Evening division: Lectures and discussions three hours a week.

D. Bellamy

Political Science 01.355

North American Political Thought

An examination of Canadian and American political ideas and their European roots, with particular reference to American and Canadian constitutional theories, federalism, imperial federation and nationalisms. Main theorists to be considered: Adams, Jefferson, Calhoun, de Tocqueville, André Siegfried, P.E. Trudeau.

Prerequisites: Any of Political Science 01.250, 01.255 or 01.280, or suitable background courses in related disciplines.

Not offered 1975-76.

Political Science 01.366 ★

Contemporary Analytic Theory

An analysis of the contemporary analytic school of political theory. Main theorists to be considered: Merriam, Bentley, Laski, Lasswell, Weldon, Lippman, Catlin, Easton, Kaplan, Almond, Deutsch.

Prerequisite: Political Science 01.281 ★ and/or 01.280.

Tutorial available to interested and qualified students.

Political Science 01.370

International Relations

This course studies the various theoretical approaches to the analysis and understanding of international relations. After a discussion of the scope and types of theories, the subject matter is dealt with in terms of two analytical contexts: the national state and the global international system; theories discussed are to include domestic-international linkages, ideology, decision-making, power, theories of strategy, negotiation,

balance, conflict and integration.

Prerequisite: Political Science 01.275, or permission of the instructor.

Day division: Lectures and discussions three hours a week.

Political Science 01.376 ★

Parties and Pressure Groups in the Canadian Polity

A systematic examination of the role and function of political parties and pressure groups in the Canadian context.

Prerequisite: Political Science 01.255. Political Science 01.281 ★ is strongly recommended though not required. Not offered 1975-76.

Political Science 01.377 ★

Electoral and Legislative Behaviour in the Canadian Polity

A systematic examination of the Canadian electoral and legislative systems with special emphasis on the findings of recent research.

Prerequisite: Political Science 01.255. Political Science 01.281 ★ is strongly recommended though not required. Not offered 1975-76.

Political Science 01.391 ★

Special Topic Seminar

Offered at the discretion of a professor wishing to develop with selected students some area of particular research interest.

Political Science 01.395 ★, 01.396 ★

Tutorial

Offered at the discretion of a professor to permit the motivated student the opportunity of independent work. Open to Third year students only.

Psychology

Officers of Instruction

Co-ordinator

D.A. Andrews

Professor

F.R. Wake

Associate Professors

J.F. Campbell

W.E. Walther

Assistant Professors

D.A. Andrews

L.R. Barnett

Special Appointment in Community Psychology (Corrections)

P.E. Gendreau (*Rideau Correctional Centre*)

Special Appointment in Community Psychology (Mental Health)

F.X. Plaus (*Royal Ottawa Hospital*)

Sessional Lecturers

W.R. Barnes

K. Hrachuk

R.G. Watters

General Information

The Psychology program at St. Patrick's College is intended to provide a background in the basic concepts and methods of modern behavioural science and to provide pre-professional experience and training in the behavioural analysis of human-social problems. Effective analysis and intervention in these areas requires a firm grounding in basic methodology and basic behavioural science. Hence, courses at the 100 and 200 levels may survey the applied implications of behavioural science but stress methodology and basic theory and research in learning, perception, motivation, and physiology. At the 300 level, the focus of the courses is on specific problems. Because the analysis of human-social problems must take place at several levels, the student will find that concepts from Philosophy, Mathematics, Biology and the Social Sciences recur throughout the program.

The Psychology program at St. Patrick's has also been planned with reference to the needs of the liberal arts student who does not want to Major in the discipline. The non-Major may select a broad survey of the discipline at the 100 level or sample the basic concepts in Psychology at the 200 level with a focus on any of the following areas: personality, developmental, or biological aspects of behaviour. The problem-oriented courses at the 300

level are open to non-Majors who present the necessary prerequisites.

Major Programs

Major in Psychology

The requirements for a Major in Psychology are a minimum of six credits in Psychology, including:

1. at least one full credit from Psychology 04.228, 04.258, 04.268, 04.210 ★ or 04.218 ★;
2. Psychology 04.208;
3. at least one of Psychology 04.100 or 04.378;
4. at least one full credit from Psychology 04.308, 04.354 ★, 04.356 ★, 04.357 ★, 04.358, 04.364 ★, 04.365 ★, 04.366 ★ or 04.367 ★.

Students wishing to substitute courses given in the Psychology Department, Division II, for their required courses must see a St. Patrick's faculty member in Psychology. Generally, students are advised to choose such courses only when they do not overlap significantly with the St. Patrick's offerings.

Combined Major

The requirement for a Combined Major is a minimum of four credits in Psychology, including:

1. at least one full credit from Psychology 04.228, 04.258, 04.268, 04.210 ★ or 04.218 ★;
2. Psychology 04.208;
3. at least one of Psychology 04.100 or 04.378;
4. at least one full credit from Psychology 04.308, 04.354 ★, 04.356 ★, 04.357 ★, 04.358, 04.364 ★, 04.365 ★, 04.366 ★ or 04.367 ★.

With a Psychology-Sociology combination, the student may present Sociology 08.206 and 08.207 ★, and substitute an additional full credit in Psychology for Psychology 04.208.

Optional Courses Outside of Psychology

Within the liberal arts tradition, the Major is free to select his options from the range of disciplines represented within St. Patrick's College and the University. However, the Major's attention is directed to the following course which appears to complement the orientation of the Psychology program particularly well: (Philosophy), 07.200 (Science and Man) and the whole range of courses with a social policy emphasis outlined in the Sociology section of the Calendar.

Honours Programs

Students who are considering an Honours program in Psychology are referred to p. 175 where the requirements for this program are described in detail. The Fourth year of this program is offered in the Psychology Department, Division II. The equivalence of the courses offered at St. Patrick's to those offered in Division II is given following the individual course descriptions. Students contemplating an Honours program in Psychology are strongly advised to consult a member of the discipline.

Prerequisites

Psychology 04.100 is no longer a specified prerequisite for any course in Psychology at St. Patrick's College. Most 200-level courses are now open to First year students. All 300-level courses but Psychology 04.378 now carry the prerequisite of "two full credits in Psychology". The prerequisite for Psychology 04.378 is "three full credits in Psychology" and would normally be taken in Third year.

Courses Offered

Psychology 04.100

Introductory Psychology

A critical examination is made of man's mind and behaviour. Topics covered range from the effects of psychosurgery to basic perception and learning. Content, however, ranks second to the development and appreciation of a scientific attitude. The orientation is biological, social and experimental, but an emphasis is on the human nature of disciplined inquiry. Self study is coupled with lectures and discussion in small groups. Individual efforts are encouraged, including participating in on-going research and service projects. Equivalent to Psychology 49.100.

J.F. Campbell (day), R.G. Watters (evening)

Psychology 04.208

Foundations of Psychological Research

Conceptual and statistical foundations of psychological research. An introduction to the general principles of research and experimentation with special attention paid to statistics as a major tool in the study of behaviour. Computational exercises and research experience complement lectures on experimental design and methodology. Open to First year students. Equivalent to Psychology 49.305.

Day division: Lectures and laboratory sessions three hours a week. Some research is required outside regular class hours.

D.A. Andrews

Psychology 04.210 ★

Social Psychology

An introduction to social psychology. Areas covered will include group processes, attitude formation and change, etc. Open to First year students. Equivalent to Psychology 49.210 ★.

Day division, First term: Lectures two hours a week, two hour laboratory every other week.

Psychology 04.218 ★

Assumptions of Social Psychology

A consideration of some assumptions made by social psychologists. Phenomenological and behavioural theories will be compared.

Prerequisite: Sociology 08.210, Psychology 04.210 ★, 49.210 ★ or Sociology 53.210.

Day division.

Psychology 04.228

The Biological Basis of Behaviour

Human behaviour related to its biological background. Evolution and its implications. Instinct. The endocrine system, brain and nervous systems and their roles in normal and abnormal behaviour. Man's sensory systems and the organization of sensory input. Genetics. Equivalent to 49.220 ★ and a half credit course (unspecified) in Psychology. Open to First year students.

Lectures three hours a week.

Psychology 04.258

Child Psychology

The study of the developing individual from conception to puberty. An interdisciplinary approach using information from genetics, physiological, cognitive, comparative, clinical and experimental psychology. Equivalent to 49.250 ★ and a half credit course (unspecified) in Psychology. Open to First year students.

Day division: Lectures three hours a week.

F.X. Plaus

Psychology 04.268

The Person and His Behaviour: Theories of Human Conduct and Cognition

The individual and his behaviour are examined from the perspective of several theoretical positions within psychology, namely: psychoanalytic theory, social learning theory, dissonance theory and exchange theory. The course stresses theory and research in the interpretation of human behaviour. Equivalent to 49.260 ★ and a half credit course (unspecified) in Psychology. Open to First year students.

Evening division: Lectures and discussions three hours a week.

Psychology 04.308

The Analysis of Individual Behaviour

A review of clinical, psychometric and operant methods in the study of individual behaviour. The contributions of the three approaches will be evaluated at the descriptive, predictive and functional levels. Ethical problems and

principles will be reviewed. Some field and laboratory work will be required.

Prerequisites: Two full credits in Psychology. Psychology 04.208 or Sociology 08.207 recommended.

Evening division: Lectures and field or laboratory work three hours a week.

P.E. Gendreau, D.A. Andrews and staff

Psychology 04.354 ★

Adulthood

An examination of theories on maturity; the problems, training and adjustments required during adulthood. Classroom material will be augmented by projects and special field trips involving adults in the community.

Prerequisites: Two full credits in Psychology.

Evening division, First term: Lectures and seminars three hours a week.

F.R. Wake

Psychology 04.356 ★

Development of Language

An examination of first language acquisition in the child. Research and theory in the area will be discussed. Some research will be expected of the student enrolled in this course.

Prerequisites: Two full credits in Psychology.

Psychology 04.357 ★

Old Age

Aging will be examined from the standpoints of physiological, psychological and social change. Problems of retirement will be given special attention. Face-to-face contact will be provided by research and field trips to public and private homes.

Prerequisites: Two full credits in Psychology.

Evening division, Second term: Lectures and seminars three hours a week.

F.R. Wake

Psychology 04.358

Psychology of Adolescence

Psychological growth and development from adolescence to maturity. Equivalent to 49.253 ★ and a half credit course (unspecified) in Psychology.

Prerequisites: Two full credits in Psychology.

Day division: Lectures and discussions three hours a week. Self paced study.

F.R. Wake

Psychology 04.364 ★

Abnormal Behaviour

The course covers the classification, etiology and treatment of the behaviour disorders. Research with animals and humans will be reviewed. Some knowledge of psychoanalytic theory and behaviour theory will be assumed. Equivalent to 49.264 ★.

Prerequisites: Two full credits in Psychology.

Evening division, First term: Lectures and discussion three hours a week.

Psychology 04.365 ★

Criminal Behaviour

An examination of behavioural approaches to the classification and treatment of offenders. Theories and research relevant to selected patterns of law-breaking and selected offender types will be reviewed. The value of behaviour modification and counselling programs within prisons will be examined.

Prerequisites: Two full credits in Psychology.

Day division, Second term: Lectures and seminars three hours a week.

D.A. Andrews

Psychology 04.366 ★

Addiction

A critical review of social-psychological theories and research on the acquisition and maintenance of addictive behaviour. The rationale and outcome of treatment programs for the abuse of alcohol, tobacco, the opiates and the amphetamines.

Prerequisites: Two full credits in Psychology.

Day division, First term: Lectures and discussions three hours a week.

D.A. Andrews

Psychology 04.367 ★

Behaviour Disorders of Childhood

A review of problems of classification and interpretation. Specific problems covered include early childhood, autism, minimal brain dysfunction, learning disabilities and school phobia.

Prerequisites: Two full credits in Psychology.

Day division, First term: Lectures and discussions three hours a week.

F.X. Plaus

Psychology 04.378

Advanced General Psychology

The course has two equal and complementary aspects. One is that each student meets individually and periodically with the instructor to examine a limited area of psychology on which he or she will spend some effort in scholarly research. The second aspect imposes responsibility for a weekly conference of about fifteen people drawn from 04.100 Introductory Psychology. Here breadth of content is achieved through systematic review of the first course. Teaching a small group with some autonomy in the selection of specific material gives added dimension to the learning experience. Key concepts in perception, learning and cognition are emphasized.

Prerequisites: Three full credits in psychology and permission of the instructor. Open to both Day and Evening students.

J.F. Campbell and staff

Psychology 04.391 ★

Practicum in Community Psychology

This course supplements the theoretical and research orientation of the classroom with supervised field work. Emphasis is equally on gaining applied experience and on active and detailed study of community settings such as correctional institutions and centres for treatment and management of the retarded and the elderly. Readings, discussions, and reports will be integrated with the program in the different settings. Research efforts will be encouraged.

Prerequisite: Open to Third year students in Psychology with permission.

Day and Evening divisions, First and Second terms.

Psychology 04.392 ★

Practicum in Community Psychology

Prerequisite: Satisfactory completion of Psychology 04.391 ★.

Day and Evening divisions, First and Second terms.

Religion

Officers of Instruction

Co-ordinator
J.P. Dourley

Professor
D. Chung

Assistant Professors
J.P. Dourley
J. Ramisch

General Information

The study of religion at the university level is designed to help us understand and evaluate an aspect of human tradition which continues to influence us individually and collectively. Men have been religious since the beginning of their history, and the religion program at St. Patrick's College attempts to explore part of man's religion through a series of complementary courses. Specifically, the focus of the program at the College is on the western religious traditions closest to us, the Judeo-Christian traditions, from their origins in biblical times down to the present. Although the courses fit into a pattern from the First to the Third year, they need not be taken in order, and none of them has any prerequisites.

Courses Offered

Religion 09.100

Introduction to World Religions

A survey of Eastern religions: Hinduism, Buddhism, Taoism, Confucianism, and Shinto. A survey of Western religions: Zoroastrianism and Islam. Special attention will be paid to the theological and philosophical teachings of these religions.

Lectures three hours a week.

Religion 09.120

Introduction to the Bible

An introduction to the critical study of the Jewish and Christian scriptures examined not simply as literature but as the historical record of the religious faith of these people. Biblical texts are studied from the point of view of history and literary form, with selected representative works investigated in more detail. Emphasis is divided between the Bible texts themselves and modern critical studies of them.

Lectures and discussion three hours a week.

Religion 09.200

Contemporary Ethical Problems

An introduction to Christian ethical systems and their applications to current problems. Biblical morality, tensions between law and freedom, and situation ethics are among the areas examined. Students will be asked to choose, individually or in groups, a problem for ethical consideration, e.g., peace and war, drug use, human rights and minority treatment, medical ethics, or sexual ethics.

Not offered 1975-76.

Religion 09.203

Religion and Art in India, China and Japan

A study of art as an expression of religious ideas and attitudes in India, China and Japan. Slides and films will be used to illustrate the relationship between religion and art in the Hindu and Buddhist traditions of India and in Chinese Buddhist, Taoist and Zen traditions. Some of the themes of the course are: religious expression in pre-historic art; myth and symbol in art forms; motifs underlying temple architecture and sculpture; the relationship between religious ideas and theories of art, iconography and the place of art in religious practices. Prerequisite: Religion 34.100, or Religion 09.100, or permission of the instructors.

Not offered 1975-76.

Religion 09.250

Modern Religious Thought

An examination of the major currents of religious and philosophical thought in the Protestant and Catholic nineteenth and twentieth centuries. The Protestant development is traced from Kant, Hegel, Schleiermacher and their respondents through nineteenth century liberalism into the neo-orthodox reaction (Barth, Tillich, Bultman), the theologies of the secular (Bonhoeffer, Cox), the death of God theologians (Altizer, Van Buren, Hamilton) and beyond. The Catholic development is traced from the impact of the French Revolution, through the developments leading up to Vatican I, the Modernist crisis and subsequent developments in Catholic thought culminating in Vatican II.

Not offered 1975-76.

Religion 09.270

The Development of Christian Thought

The historical and cultural development of selected aspects of Christian thought from its origins to the modern period. Problems considered are the early shift from a semitic to a hellenistic culture; the beginnings of the church as an institution; the development of thinking about Jesus in the early councils; conciliarism and other theories on the nature of the church; medieval efforts at reform; issues in the Protestant Reformation and its aftermath. Analysis of the way change and development has taken place in Christianity will also be included.

Not offered 1975-76.

Religion 09.300

Faith and Atheism

An examination of the more important models of faith and of the nature of God's presence to man in recent and contemporary philosophical and theological thought coupled with an examination of the major motifs for contemporary atheistic and agnostic affirmations. The course attempts to show the diversity of opinion on the nature of God and his accessibility to man among theists and the correlative denial by non-theistic and secular thought, the purpose being to develop the students' critical judgment and synthetic capacity.

Not offered 1975-76.

Religion 09.305

Models of God and Man in the Thought of Paul Tillich, Teilhard de Chardin, and C.G. Jung

The course will focus upon a common problematic central to these modern thinkers with backgrounds in theology, science and psychology, namely, the nature of God's presence to and activity in nature and life. The course will expose the concerns and pressures operative in their formulation of the question of God and with the similarities and disparities of their responses. Special attention will be given to their models of the relationship of divine immanence and transcendence and to the consequent shape of the major Christian symbols within these models.

Related background courses: Religion 09.250, 09.300, 34.130, 34.200, 34.265, 34.280.

Day division: Three hours a week.

J. Dourley

Science

Officer of Instruction

Professor

F.E. Banim

Courses Offered

Science 00.200

Physical Anthropology (Introduction to the Study of Prehistoric Man)

A course for undergraduates desirous of learning something of what science has to say concerning the history of man. No previous formal training in biology is necessary. Definition and divisions of anthropology; physical anthropology; history, prehistory, and the nature of an historical document; historical introduction to human paleontology; geological time; absolute, relative and conjectural chronology; the evolution of exact chronology; modern techniques. The biological definition of man; relevant comparative anatomy of modern man, the modern anthropoid, and known fossil man. The Australopithecus problem. The Pithecanthropus-Sinanthropus-Atlanthropus group. Heidelberg, Neanderthal, and Cro-Magnon man. The Palestine Group. The relevance of the theory of evolution in the comparative anatomy of these groups. The Teilhard de Chardin synthesis. Prehistoric sites; their occurrence, study, and interpretation. Artifacts of fossil man, their nature, classification, and chronology. Prehistoric painting and sculpture. This course is available as an option to Second and Third year students only.

Texts: Leakey, *Adam's Ancestors*; Brace, *The Stages of Human Evolution*; Ardrey, *African Genesis*; LeGros Clark, *Antecedents of Man*; *History of the Primates*; Kroeber, *Anthropology*; *Biology and Race*; Wendt, *In Search of Adam*; Oakley, *Man the Toolmaker*; Burkitt, *Old Stone Age*; Darwin, *Origin of Species*; McKern, Editor, *Readings in Physical Anthropology*; Teilhard de Chardin, *The Phenomenon of Man*; Dart, *Adventures With The Missing Link*; Howells, *Evolution of the Genus Homo*; Braidwood, *Prehistoric Men*; Pfeiffer, *The Emergence of Man*; Pilbeam, *The Evolution of Man*; Pilbeam, *The Ascent of Man*; Napier, *The Roots of Mankind*; Van-Lawick Goodall, *In the Shadow of Man*.

Day division: Two lectures and one laboratory period a week.

F. Banim

Sociology

Officers of Instruction

Professor
G. Irving

Associate Professor
F.K. Hatt

Assistant Professors
C. Farmer
F. Hughes
B.D. Johnson
T. Nosanchuk
J.A. Vantour
C. Wells

Sessional Lecturers
F. Fontaine
J. Hatt
M.D. Nelson
W. Outerbridge
R.A. Ruddell

General Information

The program in sociology at St. Patrick's College is designed both to provide the student with a broad understanding of the discipline and the opportunity to concentrate on the study of social organization and institutions, social problems, and social policy in contemporary society. The student's individual program may integrate courses offered in the Department of Sociology, Division II.

Major Programs

Major in Sociology

Course Requirements:

At least six full courses in Sociology including 08.100 or 08.110, 08.206, and two of 08.301★, 08.306★ and 08.307★.

Combined Major Programs

Course Requirements:

At least four full courses in Sociology including 08.100 or 08.110, and 08.206.

Honours Programs

Students who are considering an Honours program in Sociology are referred to p. 195, where the requirements for this program are detailed. The Fourth year of this program is offered in Division II. Students contemplating an Honours program in Sociology are strongly advised to consult a member of the Department.

Courses Offered

Sociology 08.100

Principles of Sociology

Study of basic concepts and principles of social behaviour and social structure with emphasis on social groups, social backgrounds of personality, "culture", and the organization and institutional structure of contemporary society.

Lectures three hours a week.

Sociology 08.110

Principles of Anthropology

An introduction to basic concepts of anthropology and its areas of study: physical anthropology, man as an organism, evolution and race; archeology, prehistory and the beginnings of history; ethnology, social anthropology and linguistics, present and recent societies of the world, their languages and cultures.

Lectures three hours a week.

Sociology 08.206

Principles of Sociological Theory and Methodology

An introduction to sociological theory and research emphasizing the intimate connection between the two. Research questions of general interest to sociologists will be considered in the context of two current theoretical perspectives, functionalism and conflict theory. Students will be introduced to the means whereby sociologists organize concepts, construct theories and test truth claims through empirical study.

Day division: Lectures three hours a week.

Sociology 08.210★

Social Psychology

An examination of the relationship between individuals and groups. Emphasis will be placed upon group processes, such as socialization, coercion, conformity, leadership, cohesion, etc.

Prerequisite: An introductory course in Sociology, Anthropology or Psychology or permission of the instructor.

Day division: Lectures two hours a week, laboratory two hours every other week.

Sociology 08.218★

Assumptions of Social Psychology

An examination of basic assumptions underlying phenomenological and behavioural social psychological theories. Phenomenologists usually accept as the subject matter of their inquiry all data of experience; the behaviourist only accepts that data which is observable by the social scientist. Specific theorists who have used these different approaches and the implications of this for their theories are discussed.

Prerequisites: An introductory course in Sociology, Anthropology or Psychology, and an introductory Social Psychology course.

Day division: Lectures two hours a week, laboratory two hours every other week.

Sociology 08.230

Social Systems of Non-Western Societies

A study of social anthropology with an emphasis on cross-cultural comparisons of selected world societies in terms of kinship, political, economic, religious and symbolic systems.

Day division.

Sociology 08.241

The Family and Society

A study of the family as a social institution; its structure and "functions", and relationship with other institutions of society. Emphasis will be placed on the development of the family in various societies and its "organization", and "problems and policies in contemporary Canadian society".

Day division: Lectures three hours a week.

Sociology 08.245★

Social Stratification

Analysis of the bases of stratification and the types of class systems; variables which place an individual within a class, influence of class subculture on personality and social behaviour; mobility between classes, are critically examined. Some attention is paid to the dynamics of change in social-class systems.

Day division: Lectures three hours a week.

Sociology 08.246★

Canadian Social Structure

A description of class and mobility in contemporary Canadian society.

Day division: Lectures three hours a week.

Sociology 08.250

Population Studies

The study of the structure and movement of populations (fertility, mortality, migration): basic principles and concepts, sources of documentation, techniques of analysis, outline of the main demographic trends in Quebec, Ontario, Canada, and the world as a whole. An overview of population doctrines and theories since Malthus. A review of the interrelations among demographic, socio-cultural, economic and political factors and their implications for social change. A synthesis of contemporary demographic problems and policies, with particular attention to birth control and family planning in the world.

Sociology 08.255

Sociology of Deviance

A study of the theories and research on the nature, types and processes of deviant behaviour in relation to contemporary society and its institutions. Emphasis will be given to the problems of particular forms of deviant behaviour.

Day and Evening divisions: Lectures three hours a week.

Sociology 08.260★

Community

The community is studied as a localized social system in a larger social setting. This involves analysis of demographic and ecological factors as well as a variety of community based institutions. Special attention is given to decision making, community planning and development.

Lectures three hours a week.

Sociology 08.270

Criminology

The study of criminal behaviour in modern society with special emphasis on interdisciplinary theories of causation, the relationship of crime and the social structure, and policies and programs by which society reacts to crime.

Day and Evening divisions: Lectures three hours a week.

Sociology 08.301★

Contemporary Sociological Theory

Concepts and frames of reference currently used in sociology will be examined. Attention will be given to the development of approaches such as neo-positivism, symbolic interactionism, structural functionalism and exchange theory. Problems of theory construction and the relationship between theory and research will be considered.

Day division: Lectures three hours a week.

Sociology 08.306★

The Sociological Tradition

The historical development of social thought and the emergence of sociological theory will be presented. Particular attention will be given to the works of such pioneers as Marx, Durkheim, Simmel and Weber.

Day division: Lectures three hours a week.

Sociology 08.307★

Methods of Social Research

Study of the methods of empirical research in sociology with emphasis on research design, sampling, interviewing, analytic techniques and statistical procedures used in social research.

Lectures three hours a week.

Sociology 08.315★

Sociology of Education

Education in context of family, religion, economy. Effects on behaviour and attitudes.

Sociology 08.341★

Organizational Behaviour

A study of the organization of behaviour in social units which have been established for the explicit purpose of achieving certain goals. Attention will be given to organizations which vary in degree of formality, complexity and rationality in such areas as industry, government, voluntary associations and health services.

Lectures three hours a week.

Sociology 08.350

Political Behaviour

An examination of political behaviour from a social perspective with particular emphasis on the social conditions necessary for democracy, political parties and pressure groups and voting.

Sociology 08.360

French Canadian Society

After a review and analysis of the various approaches which have been used to study French-Canadian society, attention will be focused on the various institutions of French Canada such as politics, religion, education and literature. Consideration will also be given to the rise of various ideologies in French-Canadian society and how these are related to the problem of urbanization, industrialization, assimilation and survival.

Sociology 08.371★

Ethnic Groups

The study of ethnic structure and intergroup processes in "plural" societies. The focus will be on Canada, but in comparative perspectives.

Sociology 08.373★

Correctional Policy

A description of Canadian correctional administration including prison, parole and probation with an emphasis on conflicting ideologies and the dynamics of policy-making decisions. Consideration will be given to the relationship between correctional policy and other aspects of the changing society.

Prerequisite: Sociology 08.255 or 08.270, or permission of the instructor.

Day division: Lectures three hours a week.

Sociology 08.375★

Medical Sociology

A study of social factors related to health and illness, the illness role, relationships between patients and health practitioners, and the organization of health services. Attention will be given to both the social psychology of health and illness and the structure of organizations concerned with health care.

Lectures three hours a week.

Sociology 08.377★

Sociology of Welfare Institutions

Study of the emergence and position of welfare institutions in contemporary society with special emphasis on its relationship to social change, ideological conflicts and forms of organization.

Lectures three hours a week.

Sociology 08.380

Social Policy

A study of social policy in relation to social change and issues in Canadian society. This involves the policy orientation and role of the social sciences, especially sociology, in assessing the sociocultural background,

the processes and the consequences of social policy. Contemporary Canadian issues will be considered as case studies in social policy.

Prerequisites: Introductory Sociology or Anthropology, and at least one additional full Second or Third year course in Sociology, or equivalent courses in related disciplines, or permission of the instructor.

Evening division: Lectures, seminars and discussion groups three hours a week.

Sociology 08.385★

Sociology of Religion

An analysis of religion as a social institution with emphasis given to its relationship to other aspects of contemporary social structure and culture.

Sociology 08.388★

Selected Topics in Sociology

A course designed to allow faculty members with expertise in a particular area to offer that subject in a course or seminar setting.

Sociology 08.390★

Independent Studies in Sociology

A course designed to permit an individual student to pursue special topics or projects under the guidance of a faculty adviser.

Prerequisite: Permission of the Department.

Spanish

Officers of Instruction

Co-ordinator
A. Lozano

Associate Professor
A.W. Urrello

Assistant Professor
A. Lozano

General Information

Courses are designed primarily to equip students with a working knowledge of Spanish, both written and oral, that will allow them to express themselves in this language and to continue further studies of Hispanic literature and culture.

Major Programs*Requirements for Major:*

Spanish 38.100 (06.130) or equivalent, and four further courses in Spanish including 38.210 (06.231), 38.230 (06.230), or equivalent.

Requirements for Combined Major:

Spanish 38.100 (06.130) or equivalent, and three further courses in Spanish.

Honours Programs

Students who contemplate entering the Honours program in the Department of Spanish, Division I, are advised to contact a member of the Department before registering for their Second year.

Intensive Spanish Program

see p. 220.

Courses Offered

Spanish 38.015 (06.030)

Elementary Spanish

Fundamentals of grammar with emphasis on conversation, reading and composition.

Texts: Turk, *Foundation Course in Spanish (Grammar and Tape Manual)*; summer reading is recommended.

Offered in Intensive Spanish Program, First term only.

Spanish 38.100 (06.030)

Intermediate Spanish

Grammar review, conversation, reading and composition. Students coming from Spanish 38.015 (06.030) are advised to complete certain summer readings.

Prerequisite: Spanish 38.015 (06.030) or equivalent. Summer reading will be assigned on an individual basis depending upon the future interests of the students.

Offered in Intensive Spanish Program in First term and Evening division.

Spanish 38.230 (06.230)

Survey of Spanish Literature

The evolution of Spanish literature against its historical background through the study of representative literary works of all types from the middle ages to the present.

Prerequisites: Spanish 38.100 (06.130) or equivalent.

Not offered 1975-76.

Spanish 38.210 (06.231)

Hispanic Civilization

An introduction to the culture and civilization of Spain and Spanish America, including readings from their literature.

Prerequisite: Spanish 38.100 (06.130) or equivalent, or permission of the staff.

Offered in Division I, and as part of Intensive Spanish Program, Second term.

Spanish 38.240 (06.240)

Spanish American Revolutionary Literature in Translation

An evaluation of Latin American writings as the mirror of the forces and conflicts that shape these societies. The course will be given in English and emphasis will be placed on the works of contemporary writers.

Not offered 1975-76.

Spanish 38.201 ★ (06.242 ★)

Spanish Conversation

Conversation in Spanish on selected topics. Occasional laboratory sessions.

Prerequisite: Spanish 38.100 (06.130) or equivalent. Offered as part of the Intensive Spanish Program and in the Evening division, First term only.

Spanish 38.202 ★ (06.252 ★)

Spanish Composition.

A course designed to consolidate the linguistic knowledge attained in Spanish 38.100 (06.130) and to inculcate the elements of good Spanish style.

Prerequisite: Spanish 38.100 (06.130) or equivalent.

Offered in the Evening division and as part of the Intensive Spanish Program in the Second term.

Spanish 38.350 (06.330)

Survey of Spanish American Literature

The evolution of Spanish American literature through the study of representative literary works of all types from most Spanish American countries from Independence to the present.

Prerequisite: Spanish 38.100 (06.130) or permission of the instructor.

Not offered 1975-76.

Spanish 38.320 (06.340)

The Golden Age

A close study of the major works of this period.

Prerequisite: Spanish 38.210 (06.231) or 38.230 (06.230), or equivalent.

Not offered 1975-76.

Spanish 38.330 (06.350)

Modern Spanish Literature

A study of the most important authors of the nineteenth and twentieth centuries through their main works.

Prerequisite: Spanish 38.210 (06.231) or 38.230 (06.230), or permission of the instructor.

Faculty of Engineering
School of Industrial Design
School of Architecture



Officers of the Faculty

Dean
Donald A. George

Departmental Chairmen

Civil Engineering
D.A. Kasianchuk

Mechanical and Aeronautical Engineering
W.J. Rainbird

Electronics
A.R. Boothroyd

Systems Engineering
D.C. Coll

Computing Science Co-ordinator
R.J.A. Buhr

Assistant Dean and Faculty Registrar
G.M. Matthews

Assistant Faculty Registrar
H. Walker

Bachelor of Engineering Degree Program

The Bachelor of Engineering degree is awarded on successful completion of a four year program of studies. In the first three years the emphasis is on fundamental mathematical, physical and engineering sciences and on basic engineering. In the Fourth year of the B.Eng. curriculum options are offered allowing specialization in Civil, Electrical and Mechanical Engineering.

The engineering programs of study offered at Carleton University meet the academic requirements for professional engineering registration by the Association of Professional Engineers of the Province of Ontario; they also meet the academic requirements for professional registration in the provinces of Alberta, British Columbia, Manitoba, Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, Quebec, Saskatchewan and the Yukon. The degree of Bachelor of Engineering in Electrical Engineering satisfies the educational requirements of the Institution of Electrical Engineers of London, England, and carries complete exemption from the Institution's examinations.

Admission Requirements

Qualifying University Year

The Ontario Secondary School Graduation Diploma with a minimum 65% average and including an appropriate preparation in Mathematics, Chemistry and Physics (a majority of the credits presented must be in advanced or enriched phases).

First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus, Chemistry and Physics.

A student unable to meet the foregoing specific course requirements but otherwise admissible to Carleton University may be admitted, but will be required to satisfy the outstanding requirements at the Qualifying University year level.

Advanced Standing

Applications for admission with advanced standing to the Second or subsequent years of the program leading to the Bachelor of Engineering degree will be evaluated on an individual basis.

Mature Matriculation

Persons who lack the normal entrance requirements as published in this Calendar but who are twenty-three years of age or over, prior to the session in which they wish to enrol, may receive consideration for admission to a degree program.

Qualifying University Year

Term	Lectures and Tutorial		Laboratory and Problem Analysis	
	I	II	I	II
65.010 Introductory Chemistry	3	3	3	3
69.010 Introductory Calculus	3	3	—	—
75.010 Pre-University Physics	3	3	3	3
Elective*	3	3	3	3
Elective*	3	3	3	3
Hours per week	15	15	12	12

*The hours per week for electives will vary depending upon the electives chosen which must be selected from:

- (a) Courses approved for a Qualifying University year Science program;
- (b) Engineering 88.100;
- (c) Engineering 94.165.

Students completing one or both of the Engineering subjects listed above (normally taken as part of the First year program) will substitute the appropriate number of electives for these in their First year program.

First Year

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
60.110 Physics and Chemistry for Engineering Students	3	3	3	3	10
69.100 Elementary Calculus and Algebra	4	4	—	—	9
88.100 Engineering Graphics and Design	2	2	4	4	9
82.110 Engineering Analysis	3	3	3	3	10
94.165 Introduction to Computers	2	2	2	2	7
Elective, Humanities or Social Sciences	3	3	—	—	7
Hours per week	17	17	12	12	52

Minor Programs

Students are strongly encouraged to organize their elective courses to form a coherent program of study. These "Minor programs" generally involve Engineering and non-Engineering electives in each year of undergraduate study and so are best planned at the beginning of the First year. While the student may organize and select his own program, a number of particular programs have been organized by faculty and are described in the booklet, "A Guide to Choosing Electives in the Engineering Program".

Engineering Electives

While the Engineering program at Carleton is based on a three year common core followed by a year of specialized study in Civil, Electrical or Mechanical Engineering, students with particular interest in one of these branches may use the elective portion of the program to specialize

their studies in their field of interest. This may involve enrolling in required courses from a higher year as electives, although care should be taken to ensure that prerequisite requirements are met. Such courses, if successfully completed, are replaced by electives in the higher year and thereby allow greater specialization.

The program descriptions for the Second, Third and Fourth years give further details on courses particularly oriented towards Civil, Electrical and Mechanical Engineering.

Students often enrol in Engineering 82.104★(Surveying) at the end of the Winter session of their First year as part of their Second year program.

Humanities or Social Science Electives

See Note under Elective Courses, p. 267.

Second Year

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
69.201 Intermediate Calculus	4	4	—	—	9
75.233 ★ Electricity and Magnetism	3	—	3	—	6
97.251 ★ Circuits and Signals	—	3	—	3	6
88.211 ★ Mechanics II	3	—	3	—	6
82.220 ★ Mechanics of Materials I	—	3	—	3	6
88.270 ★ Elements of Materials Engineering	3	—	3	—	6
88.240 ★ Introductory Thermodynamics	—	3	—	3	6
Elective, Engineering or Scientific	2	—	3/2	—	4
Elective, Engineering or Scientific	—	2	—	3/2	4
Elective, Humanities or Social Sciences	3	3	—	—	7
Hours per week	18	18	10½	10½	60

3/2 indicates 3 hours alternate weeks

Minor Programs

Students who have not yet commenced a Minor program should review the advantages and possibilities offered. Details are given in the booklet, "A Guide to Choosing Electives in the Engineering Program".

Engineering Electives

Courses for which Second year students often have the necessary prerequisites may be grouped according to the specialized fields of engineering as follows:

Civil Engineering

82.104 ★ Surveying
 82.331 ★ Hydrology
 82.333 ★ Urban Planning
 88.202 ★ Manufacturing Methods and Design
 88.272 ★ Engineering Materials
 88.371 ★ Manufacturing Processes and Materials Engineering I

94.205 ★ Industrial Engineering I
 94.305 ★ Industrial Engineering II
 94.310 ★ Information Systems Engineering

Electrical Engineering

94.205 ★ Industrial Engineering I
 94.303 ★ Real-Time and Hybrid Computing
 94.305 ★ Industrial Engineering II
 94.310 ★ Information Systems Engineering
 Computing Science courses see p. 382.

Mechanical Engineering

88.202 ★ Manufacturing Methods and Design
 88.272 ★ Engineering Materials
 88.371 ★ Manufacturing Processes and Materials Engineering I
 82.104 ★ Surveying
 94.205 ★ Industrial Engineering I
 94.305 ★ Industrial Engineering II

Third Year

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
Mathematics, Two electives (Note a)	3	3	-	-	8
82.322 ★ Mechanics of Solids	3	-	3	-	6
88.323 ★ Engineering Design Studies	-	2	-	3	5
88.332 ★ Introductory Fluid Mechanics	2	-	3	-	5
88.333 ★ Fluid Mechanics and Heat Transfer	-	3	-	3	6
94.361 ★ Systems and Machines	-	4	-	3	7
97.357 ★ Electronics I	4	-	3	-	7
Elective, Engineering or Scientific	2	-	3/2	-	4
Elective, Engineering or Scientific	-	2	-	3/2	4
Elective, Humanities or Social Sciences	3	3	-	-	7
Hours per week	17	17	10½	10½	59

3/2 indicates 3 hours alternate weeks

Note a

Mathematics: any two of Mathematics 69.257 ★ (Introduction to Statistics), 69.305 ★ (Functions of a Complex Variable), 69.306 ★ (Mathematical Methods I), 94.366 ★ (Computer Applications).

Engineering Electives

Courses for which Third year students often have the necessary prerequisites may be grouped according to the specialized fields of engineering as follows:

Civil Engineering

- 82.104 ★ Surveying
- 82.331 ★ Hydrology
- 82.333 ★ Urban Planning
- 82.429 ★ Highway Engineering
- 82.430 ★ Structural Planning in Architecture
- 82.434 ★ Transportation
- 82.435 ★ Transportation Geography
- 82.436 ★ Hydraulic Structures
- 88.202 ★ Manufacturing Methods and Design
- 88.272 ★ Engineering Materials
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.371 ★ Manufacturing Processes and Materials Engineering I
- 88.406 ★ Introduction to Vehicle Engineering
- 88.411 ★ Strength Analysis
- 88.412 ★ Failure Analysis
- 88.414 ★ Vibration Analysis
- 88.430 ★ Control of Noise Pollution
- 88.447 ★ Heating, Ventilating and Air Conditioning
- 88.472 ★ Manufacturing Processes and Materials Engineering II
- 94.205 ★ Industrial Engineering I
- 94.305 ★ Industrial Engineering II
- 94.310 ★ Information Systems Engineering

Electrical Engineering

- 94.205 ★ Industrial Engineering I
- 94.303 ★ Real-Time and Hybrid Computing
- 94.305 ★ Industrial Engineering II
- 94.310 ★ Information Systems Engineering
- 94.362 ★ Electrical Machines
- 94.366 ★ Computer Applications
- 94.466 ★ Switching Circuits
- 97.475 ★ Electronic Properties of Materials
- Computing Science courses see p. 382.
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.430 ★ Control of Noise Pollution
- 88.472 ★ Manufacturing Processes and Materials Engineering II

Mechanical Engineering

- 88.202 ★ Manufacturing Methods and Design
- 88.272 ★ Engineering Materials
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.371 ★ Manufacturing Processes and Materials Engineering I

- 88.406 ★ Introduction to Vehicle Engineering
- 88.411 ★ Strength Analysis
- 88.412 ★ Failure Analysis
- 88.414 ★ Vibration Analysis
- 88.430 ★ Control of Noise Pollution
- 88.447 ★ Heating, Ventilation and Air Conditioning
- 88.472 ★ Manufacturing Processes and Materials Engineering II
- 82.104 ★ Surveying
- 82.434 ★ Transportation
- 94.205 ★ Industrial Engineering I
- 94.305 ★ Industrial Engineering II
- 94.362 ★ Electrical Machines
- 94.366 ★ Computer Applications

Fourth Year (Civil Engineering Option)

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
99.497 Engineering Project	-	-	4	6	6
82.420 ★ Introduction to Structural Analysis	3	-	3/2	-	5
82.423 ★ Reinforced Concrete I	3	-	3/2	-	5
82.425 ★ Design of Structural Steel Components	3	-	3/2	-	5
82.428 ★ Foundation Engineering	3	-	3/2	-	5
82.480 ★ Resources Planning	-	2	-	-	3
Elective, Engineering (Note a)	-	2	-	3/2	4
Elective, Engineering (Note a)	-	2	-	3/2	4
Elective, Engineering (Note a)	-	2	-	3/2	4
Elective, Engineering (Note a)	-	2	-	3/2	4
Elective, Engineering or Scientific (Note a)	2	-	3/2	-	4
Elective, Engineering or Scientific (Note a)	-	2	-	3/2	4
Elective, Humanities or Social Sciences	3	3	-	-	7
Hours per week	17	15	11½	13½	60

3/2 indicates 3 hours alternate weeks

Note a

Students must elect at least two of Engineering 82.429★ (Highway Engineering), 82.333★ (Urban Planning), or 82.434★ (Transportation).

Civil Engineering

Civil Engineering is primarily concerned with the planning, design, construction, and maintenance of engineering works of all kinds, such as bridges, buildings, dams, airports, highways, railways, subways, harbours, water supply and sewage treatment systems. Civil engineers are employed in all levels of government, consulting offices, contracting firms, and the supply industries in positions of wide technical and administrative responsibility.

At Carleton University, students in their final year in the Civil Engineering Option will build upon the broad background in Engineering developed in the common program of the first three years. The program of the Fourth year requires the students to study in the general areas of structural engineering, transportation, and soil mechanics. The students are also encouraged to make use of all available elective courses to obtain as broad a background in Civil Engineering as is possible.

Electives

- 82.104 ★ Surveying
- 82.331 ★ Hydrology
- 82.333 ★ Urban Planning
- 82.421 ★ Analysis of Elastic Structures
- 82.424 ★ Soil Mechanics
- 82.426 ★ Design of Steel Structures
- 82.427 ★ Reinforced Concrete II
- 82.429 ★ Highway Engineering
- 82.430 ★ Structural Planning in Architecture
- 82.434 ★ Transportation
- 82.435 ★ Transportation Geography
- 82.436 ★ Hydraulics Structures
- 88.202 ★ Manufacturing Methods and Design
- 88.272 ★ Engineering Materials
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.371 ★ Manufacturing Processes and Materials Engineering I
- 88.406 ★ Introduction to Vehicle Engineering
- 88.411 ★ Strength Analysis
- 88.412 ★ Failure Analysis
- 88.414 ★ Vibration Analysis
- 88.430 ★ Control of Noise Pollution
- 88.437 ★ Mechanics of Flight
- 88.443 ★ Energy Conversion and Power Generation
- 88.447 ★ Heating, Ventilating and Air Conditioning
- 88.472 ★ Manufacturing Processes and Materials Engineering II
- 94.205 ★ Industrial Engineering I
- 94.305 ★ Industrial Engineering II
- 94.310 ★ Information Systems Engineering
- 94.366 ★ Computer Applications
- 94.415 ★ Engineering Management

Fourth Year (Electrical Engineering Option)

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
99.497 Engineering Project	-	-	4	6	6
94.451 ★ Signal Processing	-	3	-	3/2	5
97.453 ★ Electric Transmission and Radiation	-	3	-	3/2	5
97.454 ★ Electromagnetic Fields	3	-	-	-	4
94.455 ★ Automatic Control Systems I	3	-	3/2	-	5
97.458 ★ Electronics II	3	-	4½	-	7
97.468 ★ Solid State Electronics	3	-	3/2	-	5
Elective, Engineering or Scientific (Note a)	2	-	3/2	-	4
Elective, Engineering or Scientific (Note a)	-	2	-	3/2	4
Elective, Engineering or Scientific (Note a)	-	2	-	3/2	4
Elective, Engineering or Scientific (Note a)	-	2	-	3/2	4
Elective, Humanities or Social Sciences	3	3	-	-	7
Hours per week	17	15	13	13½	60

3/2 indicates 3 hours alternate weeks

Note a

Students must take Engineering 94.466 ★ (Switching Circuits), in either term of Fourth year if credit has not already been received for this course.

Electrical Engineering

Electrical engineers are engaged in research, design, and development associated with a wide variety of electrical apparatus and systems. Examples include electronics, circuit design and fabrication, communications, power systems, and the design and application of computers. Opportunities exist for electrical engineers in industry, government, and education, as well as private consulting.

At Carleton University, the first three years of the Engineering program provide a broad common background of technical fundamentals. The Fourth year of Electrical Engineering concentrates primarily on electronics, electromagnetics, control, and communications. In addition, Electrical Engineering students may further enhance their specialized knowledge by choosing Engineering electives throughout the program in the areas of electronics, materials, systems, and computing.

Electives

- 94.205 ★ Industrial Engineering I
- 94.303 ★ Real-Time and Hybrid Computing
- 94.305 ★ Industrial Engineering II
- 94.310 ★ Information Systems Engineering
- 94.362 ★ Electrical Machines
- 94.366 ★ Computer Applications
- 94.415 ★ Engineering Management
- 94.456 ★ Automatic Control Systems II
- 94.457 ★ Introduction to Computer Architecture
- 94.461 ★ Programmable Logic Systems
- 94.466 ★ Switching Circuits
- 94.480 ★ Introduction to Software Engineering
- 94.481 ★ Software Engineering Project
- 97.469 ★ Semiconductor Devices and Circuits
- 97.475 ★ Electronic Properties of Materials
- 97.478 ★ Integrated Circuit Electronics
- Computing Science courses see p. 382.
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.430 ★ Control of Noise Pollution
- 88.443 ★ Energy Conversion and Power Generation
- 88.472 ★ Manufacturing Processes and Materials Engineering II

Fourth Year (Mechanical Engineering Option)

Term	Lectures and Tutorial		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
99.497 Engineering Project	-	-	4	6	6
88.402 Mechanical Engineering Design and Practice	3	3	-	-	7
88.403 ★ Mechanical Systems Design	-	-	3	3	5
88.404 ★ Dynamics of Machinery	2	-	3/2	-	4
88.440 ★ Applied Thermodynamics	3	-	3/2	-	5
88.446 ★ Heat Transfer	-	3	-	3/2	5
Elective, Engineering	2	-	3/2	-	4
Elective, Engineering	-	2	-	3/2	4
Elective, Engineering	-	2	-	3/2	4
Elective, Engineering or Scientific	2	-	3/2	-	4
Elective, Engineering or Scientific	-	2	-	3/2	4
Elective, Humanities or Social Sciences	3	3	-	-	7
Hours per week	15	15	13	15	59

3/2 indicates 3 hours alternate weeks

Mechanical Engineering

Mechanical Engineering by its nature is a highly diversified discipline ranging from applied mathematics and physics on the one hand to an empiricism verging on black magic on the other. The discipline embraces three main topic areas—solid mechanics and materials, fluid mechanics, and thermo-sciences, which together provide the breadth necessary for the young graduate mechanical engineer to go forth and practise his art.

At Carleton University, students in their final year in the Mechanical Engineering option will build upon the broad background in Engineering developed in the common core program of the first three years. In addition to the continued major emphasis on design, dynamics, thermodynamics and heat transfer the student can choose elective courses which span a wide range of applied subjects like noise control, energy conversion and power generation, manufacturing processes, aerodynamics and flight mechanics, automatic controls etc. which reflect the wide range of interests of faculty members of the Department of Mechanical and Aeronautical Engineering. In addition the final year student completes a major project on a topic of current interest in Mechanical Engineering.

Electives

- 88.202 ★ Manufacturing Methods and Design
- 88.272 ★ Engineering Materials
- 88.301 ★ Measurement and Instrumentation in Engineering
- 88.371 ★ Manufacturing Processes and Materials Engineering I
- 88.406 ★ Introduction to Vehicle Engineering
- 88.411 ★ Strength Analysis
- 88.412 ★ Failure Analysis
- 88.414 ★ Vibration Analysis
- 88.430 ★ Control of Noise Pollution
- 88.432 ★ Fluid Dynamics
- 88.435 ★ Fluid Machinery
- 88.437 ★ Mechanics of Flight
- 88.441 ★ Power Plant Analysis
- 88.443 ★ Energy Conversion and Power Generation
- 88.447 ★ Heating, Ventilation and Air Conditioning
- 88.472 ★ Manufacturing Processes and Materials Engineering II
- 82.104 ★ Surveying
- 82.434 ★ Transportation
- 82.436 ★ Hydraulics Structures
- 94.205 ★ Industrial Engineering I
- 94.305 ★ Industrial Engineering II
- 94.362 ★ Electrical Machines
- 94.366 ★ Computer Applications
- 94.415 ★ Engineering Management
- 94.452 ★ Control Systems and Instrumentation
- 94.456 ★ Automatic Control Systems II

General Information

The study of Engineering is necessarily structured. Upper year courses are built on the material studied in the previous years and the approach taken is, of course, more advanced. The undergraduate program requirements are shown below, divided into four years. A full-time student normally takes six full courses or equivalent, and must take at least five courses each year unless given special permission by the Faculty of Engineering.

When a student first registers in the Faculty of Engineering he is assigned a faculty member who acts as his faculty adviser. The adviser usually counsels the student for the duration of his undergraduate program. This counselling includes program requirements, selection of electives, and course and program approvals. Students are advised to consult with their faculty advisers on a regular basis, but this does not preclude seeking advice and assistance from other faculty members.

Progress through the program is by means of a modified credit system, although for purposes of scheduling and for the foregoing reasons each student is cited as being in a particular year of the program. In order to move from one program year to the next a student must not be deficient in more than one course from the following lists.

First Year Prerequisites

Mathematics 69.010
Chemistry 65.010
Physics 75.010

Second Year Prerequisites

Those of the First year plus:
Science 60.110
Mathematics 69.100
Engineering 82.110

Third Year Prerequisites

Those of the First and Second years plus:
Mathematics 69.201
Engineering 97.251★, 88.211★ and 82.220★

Fourth Year Prerequisites (Civil Engineering Option)

Those of the First, Second and Third years plus:
Engineering 82.322★
Third year Mathematics options

Fourth Year Prerequisites (Electrical Engineering Option)

Those of the First, Second and Third years plus:
Engineering 94.361★ and 97.357★
Third year Mathematics options

Fourth Year Prerequisites (Mechanical Engineering Option)

Those of First, Second and Third years plus:
Engineering 88.240★ and 82.322★
Third year Mathematics options

The year requirements given above do not relate to a student's academic status, but only to his nominal year designation. However, a student who is taking courses in years above that of his year designation has the responsibility for satisfactorily resolving any prerequisite deficiencies and difficulties in his course program.

Elective Courses

The program requirements of years One through Four are tabulated on pages 257-266. Each year of the program requires that the student include in his program courses from one or more of the following classifications of electives:

1. *Engineering Electives*: All courses bearing course numbers of the Faculty of Engineering (i.e. 82, 88, 94, 97) are approved Engineering Electives.

2. *Scientific Electives*: Courses in this classification include the physical sciences, mathematical sciences, computing sciences and related courses. Approved scientific electives are listed in the booklet "A Guide to Choosing Electives in the Engineering Program".

3. *Humanities or Social Sciences Electives*: Courses in this classification must be chosen from among the appropriate humanities, social sciences or multidisciplinary courses offered in the University. Approved courses are listed in the booklet "A Guide to Choosing Electives in the Engineering Program".

Note: Where students have a program requirement of three or less humanities or social sciences electives, all of these courses must be chosen from the courses approved in this classification. Where students have a program requirement of four humanities or social sciences electives one may be taken from the list of approved humanities or social sciences or from the list of approved scientific electives. For the purpose of calculating grade point averages, all full credit courses will carry a weight of seven and all half credit courses will carry a weight of four.

Course Level

The level of the number of a course corresponds to the year level; for example, the course Engineering 88.301★ is at the Third year level. This indicates the general academic background required and specific prerequisites are also given where appropriate. However, students may take courses at a year level higher than their current registration but they are advised to consult

the course instructor if they have doubts regarding their background preparation. In some cases the instructor may also be able to waive specific prerequisites.

Qualifying University Year Courses

Qualifying University year courses cannot be used to satisfy any of the elective requirements in Years I through IV with the following special exception: A Qualifying University year course in one of the language departments may be accepted as a non-Engineering elective provided that the Chairman of the language department concerned informs the Engineering Registrar in writing that the student is most properly placed in a course at that level.

Modular Courses

Some courses offered by the Faculty of Engineering are organized on a modular basis in which the course is subdivided into a number of instructional units of weights one, two, three or four. A full course has a total weight of eight and a half-course a weight of four. Several courses may share a single module and care is exercised to ensure that modules of equal weight are academically equivalent. Periods of intensive instruction, correspondence work and audio-visual packages may be involved as well as the conventional lecturing formats, and the courses may extend over several terms. Further details are found in the course descriptions, and certain other courses, not so described, may be available in modular format.

Timetables

All undergraduate courses at the Faculty of Engineering are offered in the day division only, unless otherwise indicated.

Calculators

Electronic calculators (not including programmable types) may be used during regularly scheduled examinations.

Grading System

Standing in courses will be determined by the Faculty and will be shown by alphabetical grades. The grades used with their corresponding grade points are as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7

C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

Passed Supplemental Examination: 2.

Standings to represent special circumstances are as follows:

Aeg

Aegrotat standing is a pass standing granted despite absence from the final examinations. It may be granted by the Engineering Faculty Committee on Admission and Studies only in response to a student's written request. Aegrotat standing will be granted only in exceptional circumstances and if the term work has been of high quality.

Pass

Pass standing in a supplemental examination; equivalent to 2 grade points.

F

Failure: no academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of unsatisfactory term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing: no academic credit.

Abs

Absent from formally scheduled final examinations where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Engineering Faculty Committee on Admission and Studies for deferred examination privileges. Such applications must:

1. be made in writing to the Engineering Faculty Registrar's Office not later than *one week* after the date of the examination; and
2. be fully supported in the case of illness by a medical certificate or by appropriate documents in other cases.

Academic Standing

The academic standing of each full-time student will be reviewed just prior to Fall registration. At that time the student's previous record, including courses from the preceding Summer session and supplemental examination results, will be considered. To achieve satisfactory academic standing, the student must attain standing (a grade point of 1 or better) in at least four full courses, or equivalent, of those for which he has been registered during the past year, and obtain an overall weighted grade point average as given below:

- 2.5 after one year of study
- 2.8 after two years of study
- 3.1 after three years of study
- 3.4 after four or more years of study

A year of study, as used here, refers to the student's period of study and not to the program year defined in the previous section of these regulations. Calculation of the weighted average is based on all the courses in which the student was registered during the year being completed plus the courses of previous years in which standing was obtained and which have not been repeated.

Qualifying University year program grade points are calculated as a simple average without weighting of courses. To achieve satisfactory academic standing, the Qualifying University year student must attain standing (a grade point of 1 or better) in at least four full courses, or equivalent, of those for which he has been registered during the past year and obtain a grade point average of 2.5. Qualifying University year program grade points are not used in calculating the overall weighted grade points of the First to Fourth years.

A student, not on probation, who fails to meet the foregoing conditions will be placed on academic probation. A student on probation who meets these conditions will regain satisfactory academic standing; if he fails to meet these conditions, he will lose his undergraduate status and will be ineligible for future registration in the Faculty of Engineering.

A part-time student will have his record reviewed during the normal review period immediately following his completion of six, twelve and eighteen courses and upon completion of the program requirements. The equivalent of a year of study will be taken to be the completion of six full courses.

Students admitted with advanced standing must obtain an average appropriate to their level of admission but only those courses taken at Carleton University will be included in the evaluation.

Graduation

In order to fulfil the minimum graduation requirements for the degree of Bachelor of Engineering, a candidate must have passed all the course requirements of the First to Fourth years, inclusive, with an overall weighted grade point average of at least 3.4 and, in addition, must be recommended for graduation by the Faculty of Engineering.

Degrees with Distinction

Upon recommendation of the Faculty of Engineering, the notation "with High Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Engineering. To receive this recommendation the candidate is expected to obtain a weighted grade point average of at least 9.0 in the course requirements of the final year and, in addition, a weighted grade point average of at least 7.8 in the course requirements of the First to Fourth years, inclusive.

Upon recommendation of the Faculty of Engineering, the notation "with Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Engineering. To receive this recommendation the candidate is expected to obtain a weighted grade point average of at least 7.8 in the course requirements of the final year and, in addition, a weighted grade point average of at least 6.6 in the course requirements of the First to Fourth years, inclusive.

Department of Civil Engineering

Officers of Instruction

Chairman

D.A. Kasianchuk

Professors

W.H. Bowes (*Joint appointment in the Department of Mechanical and Aeronautical Engineering*)

W.E. Wright

Associate Professors

E.B. Fletcher

A.M. Khan

D.A. Kasianchuk

G.T. Suter

C.R. Thompson (*Joint appointment in the Department of Systems Engineering*)

Assistant Professors

J.P. Braaksma

G.A. Hartley

Lecturer

G.M. Proctor

Adjunct Professor

D.J. L. Kennedy

Demonstrator

J.D. Rodger

Sessional Lecturers

S.C. Hum

R.F. Legget

D.H. Shields

Courses Offered

Engineering 82.104 ★

Surveying

Surveying principles and practice; measurements of distance, difference in elevation, angles and directions; theory, use and adjustments of principal surveying instruments; theory of errors and weighted measurements; engineering surveys, profile, cross sections, earth-work, horizontal and vertical curves; use of rectangular coordinates in surveying; area computation by surveying methods; principles of aerial photogrammetry. Handling of equipment, note-keeping, and surveying procedures are stressed in the field work.

Reference: Davis, Foote and Kelly, *Surveying: Theory and Practice, Fifth Edition*.

Lectures and field work three weeks at the end of the Second term.

Engineering 82.110

Engineering Analysis

Plane statics: applications to trusses, frames, and machine members. Introduction to the behaviour of materials: simple stress-strain relationships; yield, ultimate stress, failure; stresses in pin jointed structures and beams. Kinematics and dynamics of a particle. Rigid bodies in translation and rotation. Vector notation and introduction to three dimensional statics.

Both terms: Lectures and tutorials three hours a week, seminar and laboratory three hours a week.

E.B. Fletcher, G.M. Proctor

Engineering 82.220 ★

Mechanics of Materials I

Pin jointed trusses: Forces and stresses in members, design factors, introduction to design, bolted and riveted connections. Bending and shearing stresses in beams by approximate methods. Stresses in thin-walled cylinders due to internal pressure and torsion. Mohr's circle for stress. Stress-strain relations. Bending stresses in beams. Circular members in torsion. Stress-strain relations in shear. Shearing stresses in beams. Mohr's circle for strain. Introduction to electric resistance strain gauges, principal stresses from strain rosette data. Ultimate loads in bending and torsion. Thermal stresses. Buckling of columns.

Prerequisite: Engineering 82.110.

Text: Byars and Snyder, *Engineering Mechanics of Deformable Bodies*.

One term: Lectures three hours a week, problem analysis and laboratory three hours a week. Offered both terms.

F.W. Black, W.H. Bowes

Engineering 82.322 ★

Mechanics of Solids

Material properties; failure theories, fatigue. Inelastic behaviour of beams. Strain energy; theorems of Castigliano. Deformations. Introduction to statically indeterminate structures. Introduction to modern analysis of structures using the computer. Instability; beam columns. Free and forced vibration of the linear single degree of freedom system with damping. Transmissibility and isolation.

Prerequisite: Engineering 82.220 ★.

Text: Popov, *Introduction to Mechanics of Solids*.

First Term: Lectures, three hours a week, problem analysis and laboratory three hours a week.

G.T. Suter

Engineering 82.331 ★

Hydrology

Hydrologic cycle, stream flow, hydrology of snow, subsurface water, hydraulics of wells, unit hydrograph and S-curve analysis of flood flows, infiltration, river and reservoir routing, introduction to statistical inference and time series analysis of hydrologic data. (Also offered as Geology 67.419 ★.)

Text: Butler, *Engineering Hydrology*.

References: Chow, *Handbook of Applied Hydrology*;

DeWeist, *Geohydrology*; Linsley, Kohler and Paulhus, *Hydrology for Engineers*; Wisler and Brater, *Hydrology*.
First term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.
D.A. Kasianchuk

Engineering 82.333 ★

Urban Planning

A systematic approach to urban planning. Basic planning studies. Elements of the development plan. Land use plan formulation, zoning and land subdivision. Quantitative methods and special approaches. Interaction of land use and transport. (Also offered as Geography 45.433 ★.)

References: Recent publications.

First term: Lectures two hours a week, problem analysis three hours alternate weeks.

A.M. Khan

Engineering 82.420 ★

Introduction to Structural Analysis

Review of plane statics; analysis of statically determinate plane trusses; matrix analysis of determinate and indeterminate plane trusses; influence lines; elastic and inelastic stability of columns, beam-columns and plates; introduction to elastic and plastic analysis of indeterminate structures; structural deflections.

Prerequisite: Engineering 82.322 ★.

Text: Micholos and Wilson, *Structural Mechanics and Analysis*.

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

W.H. Bowes

Engineering 82.421 ★

Analysis of Elastic Structures

Theorems relating to elastic structures; deflections of structures by the unit load method; analysis of indeterminate elastic structures by the flexibility method; elementary analysis of indeterminate elastic space trusses and frames by the stiffness method.

Prerequisites: Engineering 82.420 ★ and Fourth year registration.

Text: Micholos and Wilson, *Structural Mechanics and Analysis*.

Second term: Lectures and tutorials two hours a week, problem analysis three hours alternate weeks.

G.A. Hartley

Engineering 82.423 ★

Reinforced Concrete I

Properties of concrete, mix design and use of admixtures, curing requirements, shrinkage, creep and temperature effects, ultimate strength and working stress, analysis and design of rectangular beams with tension and compression reinforcement and T beams, diagonal tension, bond, design of web reinforcement, two way and flat slabs, yield-line theory for slabs, concentrically and eccentrically loaded columns, footings, introduction to prestressed concrete.

Prerequisite: Engineering 82.322 ★.

Text: Winter, Urquhart, O'Rourke and Nilson, *Design of Concrete Structures*.

References: Ferguson, *Reinforced Concrete Fundamentals*; National Building Code of Canada, *Canadian Structural Design Manual*.

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

G.T. Suter

Engineering 82.424 ★

Soil Mechanics

Theoretical soil mechanics: Hydraulics of soils, including seepage, mechanics of piping, and the theory of consolidation; earth pressure theories; bearing capacity; slope stability; settlement of foundations. (Also listed as Geography 45.424 ★ and Geology 67.417 ★.)

Prerequisites: Engineering 82.428 ★ and Fourth year registration.

Text: Terzaghi and Peck, *Soil Mechanics in Engineering Practice*.

Reference: Taylor, *Fundamentals of Soil Mechanics*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

E.B. Fletcher

Engineering 82.425 ★

Design of Structural Steel Components

Determination of loads, factor of safety, properties of structural steels, fabrication and erection of structural steel, the design of axially loaded tension and compression members, including built-up compression members, design of column base plates, design of rolled steel shapes in flexure, design of simple and moment-resisting welded and bolted connections, design of members subject to combined compression and flexure, design of determinate trusses and plate girders.

Prerequisite: Engineering 82.322 ★.

Text: Gaylord and Gaylord, *Design of Steel Structures*.

References: National Building Code of Canada; C.I.S.C. *Handbook of Steel Construction*.

First term: Lectures and tutorials three hours a week, problem analysis three hours alternate weeks.

W.E. Wright

Engineering 82.426 ★

Design of Steel Structures

Steel building design: the design process, owner's requirements, services, zoning by-laws, fire regulations and fire proofing; building by-laws, structural loads, gravity load design of floor systems, beams, girders, two cycle moment distribution; column gravity loads and moments and design; lateral loads, methods of lateral load resistance, design considerations; bracing system analysis for loads and drift; approximate frame analysis for loads and drift; P- Δ effect; estimating steel costs; introduction to plastic design. Steel bridge design: bridge types, specifications, loads; design considerations; typical design.

Prerequisites: Engineering 82.425 ★ and Fourth year

registration.

References: *National Building Code of Canada (1970)*; *CSA Standard S6-1966 Design of Highway Bridges*; *Steel Building Design—CISC Workshop Notes*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

W.E. Wright

Engineering 82.427 ★

Reinforced Concrete II

Prestressed concrete: concept, materials, prestressing systems, stress analysis, design load stages, prestressing losses, member design, cable profiles, ultimate strength, shear and diagonal tension, bond, end block considerations. Concrete bridges: bridge types, design loads, distribution of loads to members and slabs, design procedures for single span slab, T-beam, AASHTO girder, and rigid frame bridges, diaphragms, bearing design. Composite bridge design: general considerations, shear connectors, design considerations. Building components: shear walls, slabs on grade, building frame design.

Prerequisites: Engineering 82.423 ★ and Fourth year registration.

Text: Winter, Urquhart, O'Rourke and Nilson, *Design of Concrete Structures*.

References: *CSA Standard S6, Design of Highway Bridges*; *National Building Code of Canada, 1970*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

G.T. Suter

Engineering 82.428 ★

Foundation Engineering

Introductory soil mechanics, including soil classification, laboratory testing, consolidation theory, shear strength, earth pressure and bearing capacity. Procedures for the analysis, design, and construction of foundations.

Prerequisite: Third year registration.

Texts: Sowers and Sowers, *Introductory Soil Mechanics and Foundations*; Bowles, *Engineering Properties of Soils and their Measurement*.

References: Terzaghi and Peck, *Soil Mechanics in Engineering Practice*; Lambe and Whitman, *Soil Mechanics*.

First term: Lectures three hours a week, laboratory three hours alternate weeks.

E.B. Fletcher

Engineering 82.429 ★

Highway Engineering

Highway planning, economics and finance; highway location and geometric design; traffic engineering; highway drainage and subgrade structure; structural analysis and design of rigid and flexible pavements; mineral aggregates; bituminous mix design; principles of frost action and applications to highway design.

Prerequisite: Third year registration.

Text: Oglesby and Hewes, *Highway Engineering*.

References: Ritter and Paquette, *Highway Engineering*; Woods, *Highway Engineering Handbook*; Yoder, *Princi-*

ples of Pavement Design.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

A.M. Khan

Engineering 82.430 ★

Structural Planning in Architecture

The nature of structural planning problems; general criteria in structural planning; functional, technical, economic and form considerations; loads, classification and estimation; building codes, fire resistance requirements; structural systems; various classifications; comparative study; integration of structural systems with other building systems; synthesis, preliminary analysis and evaluation of alternative structural schemes; case studies. (Also offered as Architecture 77.424.)

Prerequisite: Third year registration.

Second term: Lectures three hours a week.

S.G. Haider

Engineering 82.434 ★

Transportation

Introduction to the transportation planning process. The transportation system/environment ensemble. Structuring transportation problems in a systems analysis framework. Problem recognition, problem definition, solution generation, solution analysis and evaluation. Planning urban transportation systems. Trip generation, trip distribution, modal split, and traffic assignment. Planning for other transport modes; air, rail, water, and pedestrian flows. Development of alternative transportation system proposals. Introduction to transport project and system economic evaluation. Environmental impact studies. (Also offered as Geography 45.434 ★.)

Prerequisite: Third year registration.

Text: Paquette, Ashford, Wright, *Transportation Engineering, 1972*.

Reference: Bruton, M.J., *Introduction to Transportation Planning, 1970*; Reynolds, *The Urban Transport Problem, 1971*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

J.P. Braaksma

Engineering 82.435 ★

Transportation Geography

Geographical appraisal of transportation networks in relation to their physical and economic environments. Traffic flows as the dual of spatial distributions of human activity. The economics of transport as they relate to regional development and the location of industry. Problems of urban transport. (Also offered as Geography 45.341 ★.)

Prerequisite: Third year registration.

Not offered 1975-76.

Engineering 82.436 ★**Hydraulic Structures**

Open channel flow; channel transitions and controls; arch, earth and gravity dams; spillways, weirs, gates and culverts; mechanics of sedimentation in reservoirs and rivers; fluvial morphology and river engineering.

Prerequisite: Engineering 88.333.★

Text: Morris, *Applied Hydraulics in Engineering*.

References: Blench, *Regime Behaviour of Canals and Rivers*; Chow, *Open-Channel Hydraulics*; Creager, Justin and Hinds, *Engineering for Dams*; Linsley and Franzini, *Water Resources Engineering*.

Given at the University of Ottawa, Civil Engineering Department.

Engineering 82.480 ★**Resources Planning**

Systematic approach to resource planning and management problems. Introduction to public enterprise economics. Land resource planning: theories relating to land use, the impact of urbanization process on land use and conflicts from engineer's point of view. Introduction to water resource planning: engineering, economic and sociological factors involved. Other selected topics to be discussed.

References: Recent publications.

Second term: Lectures two hours a week.

A.M. Khan

Engineering 99.497**Engineering Project**

As a part of the Fourth year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his engineering project proposal to the Dean of Engineering on or before October 1.

Students enrolled in the Fourth year Civil Engineering Option may elect to satisfy the project requirement by successfully completing two workshop courses from Division B in the School of Architecture.

Department of Mechanical and Aeronautical Engineering

Officers of Instruction

Chairman

W.J. Rainbird

Professor Emeritus

S.G. Tackaberry

Professors

W.H. Bowes (*Joint appointment in the Department of Civil Engineering*)

G. Kardos

J. Lukaszewicz

R.F. Meyer (*Visiting*)

D.A.J. Millar

W.J. Rainbird

J.T. Rogers

Associate Professors

A.N. Abdelhamid

M.J. Bibby

R.C. Biggs

F.W. Black

J.A. Goldak

R.J. Kind

J. Kirkhope

V. Marples (*Visiting*)

H.I.H. Saravanamuttoo

J.Y. Wong

Adjunct Professor

G.J. Klein

Demonstrators

J.C. Patry

J.D. Rodger

Sessional Lecturers

R. Thomson

J.D. Rodger

Courses Offered

Engineering 88.100

Engineering Graphics and Design

Introduction to engineering and design; the structure of engineering design process; feasibility studies, engineering value system; engineering information, classification and resources; fundamentals of engineering graphics as a means of communication, orthographic projections, auxiliary and oblique views, pictorial sketching and drawing including isometric and perspective, descriptive geometry, point, line and plane problems, intersections and developments; engineering synthesis, creativity; introduction to engineering analysis, the engineering problem modelling; tools of engineering analysis; communications in engineering,

graphic presentations, reports, oral presentation.

Texts: French and Vieik, *Graphic Science and Design*; Woodson, *Introduction to Engineering Design*.

Both terms: Lectures and tutorials two hours a week, laboratory four hours a week.

F.W. Black, W. Gilles, J.C. Patry, J.D. Rodger

Engineering 88.202★

Manufacturing Methods and Design

This course is intended to familiarize the student with common manufacturing methods, their economics and technical characteristics and the influence of production requirements on design. Methods discussed will include casting, forging, rolling and drawing, cutting, forming, and fabrication by welding, rivetting and bonding. The effect of selection of manufacturing method on permissible tolerances, materials and cost, and influence of quantity required on selection of method will be examined. Lectures will be supplemented by field trips and guest seminars.

Prerequisite: First year registration.

First term: Lectures and tutorials three hours a week.

J.A. Goldak

Engineering 88.211★

Mechanics II

Kinematics and kinetics of particles; Newton's second law, energy and momentum methods; kinematics and kinetics of rigid bodies; plane motion of rigid bodies; forces and accelerations; energy and momentum methods; mechanical vibrations.

Prerequisites: Engineering 82.110 and Mathematics 69.100.

Text: Beer and Johnston, *Vector Mechanics for Engineers: Dynamics*.

One term: Lectures three hours a week, problem analysis three hours a week. Offered both terms.

J.Y. Wong

Engineering 88.240★

Introductory Thermodynamics

Basic concepts of heat, work, temperature, property, state, system, control volume. The First Law for systems and control volumes with applications, properties of pure substances, phase diagrams. The Perfect gas laws and relations. The Second Law and its corollaries, entropy from classical approach. Properties of gas mixtures.

Prerequisites: Mathematics 69.100 and Science 60.110.

Text: Rogers and Mayhew, *Engineering Thermodynamics Work and Heat Transfer*.

Second term: Lectures and tutorials three hours a week, problem analysis and laboratory three hours a week.

D.A.J. Millar, H.I.H. Saravanamuttoo

Engineering 88.270★ (97.270)

Elements of Materials Engineering

The student is introduced to the structure of engineering materials and their behaviour in service and manufacturing. The topics presented are the following: the structure of engineering materials; the elastic and plastic

behaviour of materials; alloys, phase diagrams, solid solutions, eutectic and eutectoid materials; steels, solidification and casting; heat treatment and strengthening mechanisms in metals and alloys; failure mechanisms; an introduction to ceramics, plastics and composite materials.

Prerequisite: Science 60.110.

Text: Van Vlack, *Materials Science for Engineers*.

First term: Lectures and tutorials three hours a week, problem analysis and laboratory three hours a week.

J.A. Goldak, D.A.J. Millar

Engineering 88.272 ★ (97.272)

Engineering Materials

A discussion of the general engineering basis for selecting materials in design including the materials science principles, material stability, ease of fabrication and cost. Alloy steels for machine design: high strength and tough materials, high strength to weight ratio materials, high temperature materials, corrosion resistant materials, fatigue resistant materials. Materials of construction: steels, plastics, ceramics, wood, rubbers and composite materials.

Prerequisite: Engineering 88.270 ★ (97.270).

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

M.J. Bibby

Engineering 88.301 ★

Measurement and Instrumentation in Engineering

Measurement principles and basic definitions; standards. Accuracy and error analysis; measurement statistics. Instrument systems; sensing devices, transmitting devices, terminating devices. Typical systems and devices for measuring quantities such as temperature, pressure, flow, size, displacement, velocity, acceleration, force, power, stress, and strain. Analog methods of measurement. Dynamics of measurement. Data presentation and curve fitting. Laboratory experience will be provided in the various laboratories of the Faculty.

Prerequisite: Third year registration.

Text: Holman, *Experimental Methods for Engineers*.

Second term: Lectures and tutorials two hours a week, laboratory and problem analysis two hours a week.

J. Lukaszewicz

Engineering 88.323 ★

Engineering Design Studies

The students' skills and knowledge will be focused on the study of several engineering problems through the media of case studies and innovative designs. The studies will involve the interrelationship of such factors as problem definition, feasibility studies, specifications, constraints, modelling, analysis techniques, evaluation, and production.

Prerequisite: Third year registration.

Second term: Lectures two hours a week, laboratories and seminar three hours a week.

G. Kardos

Engineering 88.332 ★

Introductory Fluid Mechanics

Fluid properties. Units. Fluid statics; pressure distribution in fluid at rest; hydrostatic forces on plane and curved surfaces; buoyancy. Kinematics and dynamics of fluid motion: concepts of streamline, control volume, steady and one-dimensional flows; continuity, Euler, Bernoulli, steady flow energy, momentum and moment of momentum equations; applications. Introduction to Laminar and Turbulent flows.

Prerequisite: Third year registration.

Text: John and Haberman, *Introduction to Fluid Mechanics*.

First term: Lectures two hours a week, laboratory and problem analysis three hours a week.

R.C. Biggs, W.J. Rainbird

Engineering 88.333 ★

Fluid Mechanics and Heat Transfer

Review of the fundamental equations for one-dimensional ideal fluid flow, dimensional analysis and similarity, introduction to boundary layers, the causes of drag, one-dimensional steady isentropic flow, normal shock waves, open channel flow. One-dimensional steady heat conduction, elements of potential theory for steady two-dimensional heat conduction and fluid flow, analog methods, introduction to convection and radiation heat transfer.

Prerequisite: Engineering 88.332 ★.

Text: John and Haberman, *Introduction to Fluid Mechanics*.

Second term: Lectures three hours a week, problem analysis and laboratory three hours a week.

F.W. Black, R.J. Kind

Engineering 88.371 ★ (97.371)

Manufacturing Processes and Materials Engineering I

Foundry processes; principles of sand casting, moulds, cores and patterns, shell, metal and plaster moulds, metallurgy and design of castings. Welding processes; gas, arc, resistance and thermit welding, gas and arc cutting, metal spraying, brazing and soldering. Heat treatment of steel, aluminum and nickel base alloys. Carburizing and nitriding processes. Powder metallurgy; compaction, sintering and design of powdered metal parts.

Prerequisite: Engineering 88.270 ★.

Text: Doyle, Keyser, Leach, Schrader and Singer, *Manufacturing Processes and Materials for Engineers*.

First term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

J. Goldak

Engineering 88.402

Mechanical Engineering Design and Practice

Approach to design, stress analysis; design factors; properties of materials; stress concentration, notch sensitivity and fatigue; curved beams; pressure vessels; thermal stresses; screw fastenings and connections subject to variable loads; shafts; springs; journal and

plane bearings; rolling bearings; belt and chain drives; kinematics and design of spur gears; couplings, brakes and clutches. The course emphasizes practical aspects of mechanical engineering, and involves the student in the presentation and defence of his designs.

Prerequisites: Engineering 82.322★ and Fourth year registration.

Text: Faïres, *Design and Machine Elements*.

References: Merritt, *Gears*; Dudley, *Practical Gear Design*; Shigley, *Mechanical Engineering Design*; Spotts, *Design of Machine Elements*.

Both terms: Lectures and seminars three hours a week.
W.H. Bowes, G. Kardos

Engineering 88.403★

Mechanical Systems Design

The student will be presented with a number of mechanical system design projects of increasing complexity. The problems will be of a real life open ended nature to exercise the student's creative and analytic talents.

Prerequisite: Concurrent registration in Engineering 88.402.

Both terms: Laboratories three hours a week.

W.H. Bowes, G. Kardos

Engineering 88.404★

Dynamics of Machinery

Kinematic and dynamic analysis and synthesis of mechanisms and machines. Design and analysis considerations in reciprocating and rotating machinery. Vibrations in machinery, vibrations of systems with more than one degree of freedom. Vibration and shock isolation. Experimental investigation of dynamic systems.

Prerequisite: Engineering 88.211★.

References: Martin, *Kinematics and Dynamics of Machines*; Thomson, *Vibration Theory and Applications*.

First term: Lectures two hours a week, laboratory three hours alternate weeks.

J.Y. Wong

Engineering 88.406★

Introduction to Vehicle Engineering

Analytical approach to vehicle performance, stability and control, and riding qualities. Design theory of chassis, suspension, power plant and transmission to meet operation requirements. Introduction to ground effect machines.

Prerequisite: Engineering 88.211★.

References: Bekker, *Theory of Land Locomotion*; Cole, *Elementary Vehicle Dynamics*.

First term: Lectures two hours a week, laboratory three hours alternate weeks.

J.Y. Wong

Engineering 88.411★

Strength Analysis

This course is to extend the student's ability in design of machine structures. Selected topics from introduction to elasticity, shear bending, shear centre, residual stresses and stress concentration. Failure theories are

discussed and related to the mechanism of failure, yielding, fatigue, brittle fracture and creep. Experimental determination of strength will be introduced.

Prerequisite: Engineering 82.322★.

Text: Juvinall, *Stress, Strain and Strength*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

G. Kardos

Engineering 88.412★

Failure Analysis

The morphology of fracture surfaces is related to service conditions and the metallurgical and mechanical properties of the material to provide a basis for identifying the cause of a failure and guiding the engineer in altering service conditions or selecting an alternate material. Ductile, brittle, fatigue, creep and corrosion failures are described in detail including the more important case histories.

Prerequisite: Engineering 88.270★ and Third year registration.

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

J. Goldak

Engineering 88.414★

Vibration Analysis

Multi-degree of freedom systems; the flexibility and transfer matrices, orthogonality principles, sweeping matrices for lower modes, Holzer type problems, branched systems. Continuous systems; longitudinal, torsional and flexural free and forced vibrations of prismatic bars. Vibrations of membranes and plates. Vibration measurements and analysis of records.

Prerequisite: Engineering 82.322★.

References: Thomson, *Vibration Theory and Application*; Timoshenko, *Vibration Problems in Engineering*.

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

J.Y. Wong

Engineering 88.430★

Control of Noise Pollution

Behaviour of sound waves. Selection of instrumentation. Practical acoustical measurements. Measurements of power level and directivity patterns. Sound propagation outdoors. Sound in small and large enclosures. Properties of porous acoustic materials. Transmission and radiation of acoustic waves by solid structures. Noise control in ventilation systems. Case histories of machine and shop quieting, office buildings and homes. Noise control in transportation.

Prerequisite: Third year registration.

References: Beranek, *Noise Reduction*; Harris, *Handbook of Noise Control*; Kinsler and Frey, *Fundamentals of Acoustics*.

Not offered 1975-76.

Engineering 88.432★**Fluid Dynamics**

Equations of fluid dynamics for elementary control volume in common coordinate systems. Incompressible nonviscous flow. Compressible steady nonviscous flow: isentropic one-dimensional flow, normal and oblique shock waves, expansion waves, wave interaction and reflection, introduction to unsteady flow. Viscous flow: Navier-Stokes equation, Poiseuille flow, Couette flow, hydrodynamic lubrication, boundary layers, Blasius solution, approximate methods and solutions, drag, boundary layer growth and stability, separation, control techniques.

Prerequisite: Engineering 88.333★.

Text: Duncan, Thom and Young, *Mechanics of Fluids*.

References: Shapiro, *Dynamics and Thermodynamics of Compressible Fluid Flow, Volume 1*; Eskinazi, *Principles of Fluid Mechanics*.

First term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

R.J. Kind

Engineering 88.435★**Fluid Machinery**

Types of fluid machines. Dimensional analysis and similarity, performance parameters, performance characteristics, running points. Cavitation and water hammer. Velocity triangles, Euler pump and turbine equation, impulse and reaction. Radial-flow pumps, fans and compressors: analysis and design, surging, series and parallel operation. Radial-flow and mixed-flow turbines. Axial-flow pumps, fans and compressors: analysis and design by cascade and blade-element methods, staging, off-design performance. Axial-flow turbines. Fluid couplings and torque converters.

Prerequisite: Engineering 88.333★.

Text: Dixon, *Fluid Mechanics, Thermodynamics of Turbomachinery*.

References: Shepherd, *Principles of Turbomachinery*; Csanady, *Theory of Turbomachines*.

First term: Lectures two hours a week, laboratory three hours alternate weeks.

D.A.J. Miller

Engineering 88.437★**Mechanics of Flight**

Introduction to mechanics of flight; elements of theoretical and experimental aerodynamics; aerodynamic characteristics of airfoils and wings at low and high speeds, airplane drag estimation; performance characteristics of propulsive systems; airplane performance analysis including take-off, landing, rate of climb, maximum speed, range, endurance, etc.; static stability and control problems and analysis.

Prerequisite: Engineering 88.333★.

References: Dommasch and Connolly, *Airplane Aerodynamics, Fourth Edition*; Etkin, *Dynamics of Flight*; Miele, *Flight Mechanics Volume 1: Theory of Flight*.

Second term: Lectures and tutorials three hours a week.

W.J. Rainbird

Engineering 88.440★**Applied Thermodynamics**

Mixtures of perfect gases and vapours, psychrometry, combustion processes, differences between real and ideal cycles, gas cycles and vapour cycles for power and refrigeration plant, principles of turbomachines.

Prerequisites: Engineering 88.240★ and Fourth year registration.

References: Jones and Hawkins, *Engineering Thermodynamics*; Rogers and Mayhew, *Engineering Thermodynamics, Work and Heat Transfer*.

First term: Lectures three hours a week, laboratory three hours alternate weeks.

H.I.H. Saravanamuttoo

Engineering 88.441★**Power Plant Analysis**

Interrelation between mechanical, thermodynamic and aerodynamic design processes; criteria of merit; selection of power plant; analysis of individual components; propulsion power plant; operation at off-design conditions; combined cycle applications.

Prerequisites: Engineering 88.240★ and Fourth year registration.

Reference: Cohen, Rogers and Saravanamuttoo, *Gas Turbine Theory*.

Second term: Lectures three hours a week.

H.I.H. Saravanamuttoo

Engineering 88.443★**Energy Conversion and Power Generation**

Energy sources and resources. Basic elements of power generation. Hydro-electric, fossil-fuel and fissile-fuel power plants. Other methods of conversion. Future methods of conversion. Economic and environmental considerations. Power generation systems. Future power needs.

Prerequisite: Fourth year registration.

First term: Lectures two hours a week, problem analysis and laboratory three hours alternate weeks, power plant visits.

J.T. Rogers

Engineering 88.446★**Heat Transfer**

An introduction to the mechanisms of heat transfer with emphasis on the basic fundamentals and practical solutions. Steady and transient conduction: solution by analytical and numerical methods as well as the electrical analog techniques. Convective heat transfer: free and forced convection for laminar and turbulent flows; heat exchangers. Heat transfer by radiation between black and grey surfaces, radiation shields, solar radiation. Boiling and condensation heat transfer. Selected applications including heat pipes and environmental heat transfer processes.

Prerequisite: Fourth year registration.

Text: Holman, *Heat Transfer, Third Edition*.

References: Chapman, *Heat Transfer*; Hsu, *Engineering*

Heat Transfer.

Second term: Lectures three hours a week, laboratory and problems three hours alternate weeks.

J.T. Rogers

Engineering 88.447 ★

Heating, Ventilating and Air Conditioning

Comfort. Environmental demands for residential, commercial and industrial systems. Methods of altering and controlling environment. Air distribution. Refrigeration methods, equipment and controls. Integrated year-round air-conditioning and heating systems; heat pumps. Cooling load and air-conditioning calculations. Thermal radiation control. Component matching. System analysis and design.

Prerequisite: Engineering 88.240 ★ and Third year registration.

Text: Stoecker, *Refrigeration and Air-conditioning*.

Reference: Carrier, Cherne, Grant and Roberts, *Modern Air-conditioning, Heating and Ventilating*.

Second term: Lectures and tutorials two hours a week, problem analysis three hours alternate weeks.

R.C. Biggs

Engineering 88.472 ★ (97.472)

Manufacturing Processes and Materials Engineering II

Plastics: properties, fabrication and design, measurement and inspection. Metal cutting: mechanics, materials, shapes and forms of tools; cutting fluids. Economics of metal cutting. Metal cutting equipment. Grinding. Chemical and electrical machining processes. Surface coating.

Prerequisite: Engineering 88.270 ★.

Text: Doyle, Keyser, Leach, Schrader and Singer; *Manufacturing Processes and Materials for Engineers*.

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

J. Goldak

Engineering 99.497

Engineering Project

As a part of the Fourth year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his engineering project proposal to the Dean of Engineering on or before October 1.

Officers of Instruction

Chairman
D.C. Coll

Computing Science Co-ordinator
R.J.A. Buhr

Professors
B.A. Bowen
D.C. Coll
D.A. George
M.A. Gullen
M.E. Ulug

Associate Professors
R.J.A. Buhr
L.R. Morris
J.E. Neilson
B. Pagurek
J.S. Riordon
C.R. Thompson (*Joint appointment in the Department of Civil Engineering*)
C.M. Woodside

Assistant Professors
W.R. Bezanson
J.K. Cavers

Adjunct Professor
J. de Mercado

Sessional Lecturers
J.R. Amyot
J. des Rivières
A.R. Donaldson
T.A.G. Gavin
G.L. Hopkins
C.F. Kropp
G.M. Matthews
P. Nador
R.A. Parson
F. Radford
C.W. Ross
D.J. Sutherland
D.A. Thomas

Courses Offered

Engineering 94.165

Introduction to Computers

The digital computer. Number systems, representation of numbers, introduction to machine language programming and computer operation. The algorithmic approach to engineering problem solving. Programming in time-shared and batch FORTRAN. Introduction to the Sigma-9 executive. Extensive examples and problems

from engineering and mathematics: iterative solutions, sorting, summing, statistics, interpolation, solution of linear and differential equations, simulation, etc.

Texts: Forsythe, Keenan, Organick, and Stenberg, *Computer Science: A First Course*; XDS FLAG Reference Manual; McCracken, *A Guide to FORTRAN IV Programming*.

References: Various manuals relating to usage of the university computer.

Both terms: Lectures and tutorials two hours a week, workshop two hours a week.

W.R. Bezanson, B. Pagurek

Engineering 94.205 ★

Industrial Engineering I

This course introduces the fundamentals underlying rational decision-making in large engineering systems. Concept and scope of industrial engineering methods. Static optimization: steepest descent and quadratic convergence strategies: Linear programming: the simplex method, computational aspects, duality. Network analysis; finite graphs; critical path scheduling. Applications will be emphasized.

Prerequisite: Concurrent registration in Mathematics 69.201.

References: Au and Stelson, *Introduction to Systems Engineering, Deterministic Models*; Wagner, *Principles of Operations Research*.

First term: Lectures and tutorials three hours a week.
C.M. Woodside

Engineering 94.303 ★

Real-Time and Hybrid Computing

This course is primarily concerned with the use of digital computers in peripheral control, analog signal processing, measurement, and hybrid computation. Small computer experience: PDP-8 machine language, peripheral control and interrupt handling software. Digital-to-analog and analog-to-digital conversion. Digital control of analog computers. (Also offered as Computing Science 95.303 ★.)

Prerequisite: Engineering 94.165.

Texts: Digital Equipment Corporation, *Introduction to Programming, Volumes 1 and 2*.

First term: Lectures and tutorials two hours a week, laboratory two hours a week.

B.A. Bowen

Engineering 94.305 ★

Industrial Engineering II

Engineering decisions in the face of uncertainty. Simple decision trees. Bayesian estimation. Recursive formulation of multi-stage problems. Markov chains. Stochastic programming. Introduction to dynamic programming. Applications to the operation of engineering systems.

Prerequisite: Engineering 94.205 ★.

References: Wagner, *Principles of Operations Research*; Au, Shane, Hoel, *Fundamentals of Systems Engineering, Probabilistic Models*.

Second term: Lectures three hours a week.

B. Pagurek

Engineering 94.310★

Information Systems Engineering

The basic function of an information system is to enable its users to perform efficiently. This course provides an appreciation of the problems related to engineering user-oriented information systems. Systems concepts. Information systems: properties, components, relationship to organization. General data base management systems. Identification of user requirements. Human factors. Design methods. Documentation. Project organization. Case studies (Also offered as Computing Science 95.310★.)

Prerequisites: Engineering 94.165 or Architecture 79.110 or Computing Science 95.101★ and 95.102★; or Computing Science 95.103★.

Reference: Langefors, *Theoretical Analysis of Information Systems Theory of Generalized Data Base Management Systems* (Codasyl System Committee).

Evening division First term: Lectures three hours a week.
P. Nador

Engineering 94.361★

Systems and Machines

Linear dynamic models of engineering systems with emphasis on the electrical machine as a system element. Application of Laplace transforms, block diagram manipulation. Characteristics of transformers and rotating machines. Analog computer simulation. Effects of feedback. Bode plots, stability analysis.

Prerequisites: Engineering 97.251★, Physics 75.233★.

Texts: Shearer, Murphy, Richardson, *Introduction to System Dynamics*; Fitzgerald, Higginbotham, Grabel, *Basic Electrical Engineering*.

Second term: Lectures and tutorials four hours a week, laboratory and problem analysis three hours a week.

J.K. Cavers, D.C. Coll

Engineering 94.362★

Electrical Machines

The course is conducted largely in the laboratory and on a project basis. Students, under broad guidance, are expected to devise and perform experiments on the operation and control of electrical machinery and related power transmission systems. Also, on a project basis, studies will be made of the use of electrical machines in the context of current problems in the supply and utilization of energy.

Prerequisite: Engineering 94.361★.

Evening division, Second term: Lectures two hours a week, laboratory three hours a week.

C.F. Kropf

Engineering 94.366★

Computer Applications

Analysis of engineering problems with the use of the digital computer including mathematical modelling, organization of the equations and methods of solution

using analytical and numerical methods. Topics in numerical methods include: solution of single algebraic and transcendental equations and sets of linear algebraic equations, determination of eigenvalues and eigenvectors; curve fitting by difference and least squares methods; numerical integration, differentiation; solution of ordinary and partial differential equations. These methods are illustrated by application to typical engineering problems. An important part of the course is the use of the computer. This is realized by course problems and a project in which the computer is used to solve a typical engineering problem. (Also offered as Computing Science 95.366★.)

Prerequisites: Third year registration in Engineering or Physics, and an introductory programming course.

Text: Southworth and Deleue, *Digital Computation and Numerical Methods*.

References: James, Smith and Wolford, *Applied Numerical Methods*; Crandall, *Engineering Analysis*.

One term: Lectures and tutorials three hours a week. Offered both terms.

J.K. Cavers, G.D. Cormack

Engineering 94.415★

Engineering Management

An introductory and overview course on modern management concepts; material is presented through lectures, seminars and case studies. Historical review. Basic elements, tasks, functions, and activities of the management process including planning, organizing, staffing, directing and controlling. Dilemmas and constraints. Management style. On completing the course the student should be able to: read and constructively criticize management literature; discuss "management" with experts in a rational manner; appreciate the management basis of his first engineering work situation.

Prerequisite: Fourth year registration.

Evening division, one term: Lectures two hours a week, seminars three hours alternate weeks. Offered both terms.

G.M. Matthews, C.W. Ross

Engineering 94.451★

Communication Systems

Mathematical representation of signals; Fourier series, Fourier transforms, Laplace transforms, spectral representation, convolution and correlation, sampling theorem. Communication systems; generation and detection of AM, FM and TV signals. Multiplexing; TDM, FDM. Various forms of PCM systems. Signal conditioning, filters, effects of noise in circuits and systems.

Prerequisite: Fourth year registration.

Reference: Lathi, *Communication Systems*; Taub and Schilling, *Principles of Communication Systems*; selected papers.

Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

G.D. Cormack

Engineering 94.452 ★**Control Systems and Instrumentation**

Linear feedback control systems with a mechanical emphasis. Transfer functions, block diagram algebra, stability analysis, root locus, Bode plots, polar and inverse polar plots, servomechanism improvement. Study of basic pneumatic and hydraulic components and systems. Laplace transform and state-space analysis. Laboratory exercises include synthesis and analysis of pneumatic and hydraulic control systems, using analog computers for comparison. Fluidic devices and three mode control.

Prerequisites: Mathematics 69.201 and Engineering 94.361 ★.

Text: Raven, *Automatic Control Engineering*.

References: Kuo, *Automatic Control Systems*; Eveleigh, *Introduction to Control Systems Design*.

First term: Lectures two hours a week, laboratory three hours alternate weeks.

C.R. Thompson

Engineering 94.455 ★**Automatic Control Systems I**

Review of Laplace transform methods in linear systems. State variable representation: state transition matrix as a linear transformation, eigenvalues and eigenvectors. Stability criteria of Hurwitz, Nyquist. Root locus. Control system design objectives. Compensation networks and state variable feedback.

Prerequisites: Mathematics 69.201 and Engineering 94.361 ★.

Text: Dorf, *Modern Control Systems*.

References: Elgerd, *Control Systems Theory*; Watkins, *Introduction to Control Systems*.

First term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

C.M. Woodside

Engineering 94.456 ★**Automatic Control Systems II**

The laboratory exercises which involve a project to design and analyze a non-linear feedback control system receive major emphasis in this course. The lectures include introduction to non-linear feedback control systems, star-space approach, phase plane analysis, sampled data systems, performance criteria. Introduction to optimal and adaptive control theory.

Prerequisite: Engineering 94.452 ★ or 94.455 ★.

References: Dorf, *Modern Control Systems*; Raven, *Automatic Control Engineering*; Elgerd, *Control Systems Theory*.

Second term: Lectures two hours a week, laboratory three hours alternate weeks.

C.R. Thompson

Engineering 94.457 ★**Introduction to Computer Architecture**

Syntax and semantics of Digital Design Language (DDL) are presented. A typical mini-computer is designed and documented to illustrate the application of DDL. Extensions of fixed architecture machines are discussed.

Bus oriented systems are introduced, beginning with autonomous memories and including peripherals. Bus protocol systems are documented. Simple interfaces are discussed, and their specification and design are illustrated. Read-only memories are introduced as systems controllers and the programming of ROM's is illustrated. Typical micro-computer structures using LSI components are documented. (Also offered as Computing Science 95.457 ★.)

Prerequisite: Engineering 94.466 ★.

Second term: Lectures three hours a week.

B.A. Bowen

Engineering 94.461 ★**Programmable Logic Systems**

Introduction to micro-computer Architecture. Characteristics and applications, major features of current systems. Techniques of micro-programming, examples of input/output, use of subroutines, arithmetic subroutines, logical operations, delays, time outs, holds, etc., discussion of programming languages and assemblers. Design studies will be selected from calculators, interface controllers, intelligent terminals, graphics, compilers, etc., economics and technical decisions in selecting and implementing a micro-computer system. (Also offered as Computing Science 95.461 ★.)

Prerequisite: Engineering 94.466 ★.

References: Assigned papers and notes.

Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

B.A. Bowen

Engineering 94.466 ★**Switching Circuits**

Introduction: Gates, coding, iterative circuits, state concepts. Combinational circuit design: Canonical forms, switching algebra, maps, multiple output networks, wired-OR networks. Memories: latch, flip flop, shift register, RAM and ROM. Sequential circuitry: synchronous counter design, circuits having inputs, asynchronous counters and scalars. Special purpose structures: timing and mode circuitry, pipeline organization, serial organization, small computer characteristics including interfacing, input/output considerations.

Prerequisite: Third year registration or permission of the instructor. (Also offered as Computing Science 95.466 ★.)

Text: Peatman, *The Design of Digital Systems*.

One term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks. Offered both terms.

M.A. Copeland, M.E. Ulug

Engineering 94.480 ★**Introduction to Software Engineering**

This course introduces students to the problems and methods of specifying, designing and producing software. Review of data and control structures in the

common programming languages; corresponding run-time structures; operating system functions. Specification of programs using flowcharts, decision tables, finite state machines, top down programming and "black box" approaches. Approaches to modularization. Inter-module communication by the shared data structure and port approaches. Table driven programs. Need for efficiency, maintainability and reliability. Stages in a software project. Students will be expected to supplement the lectures by readings in the reference material to strengthen their backgrounds in the fundamentals of applied computing science. Students will normally take Engineering 94.481★ in conjunction with this course. (Also offered as Computing Science 95.480★.)

Prerequisite: Permission of the instructor.

References: Dahl, Dijkstra and Hoare, *Structured Programming*; Knuth, *The Art of Computer Programming*, volumes I and II; Watson, *Time Sharing System Design Concepts*; Gries, *Compiler Construction for Digital Computers*; Stone, *An Introduction to Computer Organization and Data Structures*.

First term: Lectures three hours a week.

R.J.A. Buhr

Engineering 94.481★

Software Engineering Project

Students will participate in a team project to develop a small piece of stand-alone software in an organized and structured fashion. Programming languages will normally be IFTRAN and FLAG; however, other languages may be used with special permission. Non-numeric applications will be emphasized. (Also offered as Computing Science 95.481★.)

Prerequisite: Engineering 94.480★ or concurrent registration in Engineering 94.480★.

One term. Offered both terms.

D.C. Coll

Engineering 99.497

Engineering Project

As a part of the Fourth year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his engineering project proposal to the Dean of Engineering on or before October 1.

Officers of Instruction

Chairman

A.R. Boothroyd

Professors

A.R. Boothroyd

M.A. Copeland

V. Makios

Associate Professors

J.D.E. Beynon (Visiting)

D.R. Conn

G.D. Cormack

J.P. Knight

R.E. Thomas

P.D. van der Puije

Adjunct Professor

W. Chudobiak

Sessional Lecturers

D.M. Caughey

S.D. Entwistle

Courses Offered

Engineering 97.251 ★

Circuits and Signals

Nature and properties of signals. Circuit elements: definitions and basic properties. Voltage and current sources. Kirchhoff's laws, linearity and superposition. Thevenin and Norton Theorems: Resistance circuits. AC signals; phasors. AC steady state analysis: impedance, admittance and transfer properties; frequency response; detailed treatment of first order (RL and RC) circuits. Thevenin and Norton Theorems: AC steady state analysis; circuit reductions. Transient response: first order circuits, form of response; initial and final condition; relation to AC steady state properties. Properties of LCR circuits: AC steady state response; resonance. Prerequisite: Concurrent registration in Mathematics 69.201.

Text: Hayt and Kemmerly, *Engineering Circuit Analysis*. Second term: Lectures and tutorials three hours a week, laboratory and problem analysis three hours a week. P.D. van der Puije

Engineering 97.357 ★

Electronics I

An introductory course which treats the simpler aspects of electronics. Topics covered are: semiconductor diodes; theory and applications. Bipolar transistors; theory, application in control circuits and linear amplifier design. Integrated circuits; linear integrated circuits, operational amplifier applications. Application of digital circuits; combinatorial and elementary sequential digital

circuits.

Prerequisites: Engineering 97.251 ★; Mathematics 69.201 (may be taken concurrently).

Text: Oldham and Schwartz, *An Introduction to Electronics*.

First term: Lectures and tutorials four hours a week, laboratory and problem analysis three hours a week.

J.P. Knight

Engineering 97.453 ★

Electric Transmission and Radiation

Introduction to guided waves. Transient and steady-state solution of the transmission line equations. Properties of transmission lines, standing waves, impedance; effect of loading. Impedance charts, matching techniques. Lines at radio frequencies. Lines at power frequencies. Waveguides and cavities. Radiation from charge and current distributions, antennas. Near and far field of a radiator, approximations. Wire antennas, gain directivity. Introduction to arrays and apertures. Laboratory on microwave measurements and techniques.

Prerequisite: Engineering 97.454 ★.

Text: Kraus and Carver, *Electromagnetics*.

Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

D.R. Conn, V. Makios.

Engineering 97.454 ★

Electromagnetic Fields

Vector analysis; gradient, divergence, curl and Laplacian. Divergence theorem, Stokes theorem, Maxwell's equations. Electrostatic fields, Coulomb's law, Gauss' law, Poisson and Laplace equations. Image and iteration techniques. Boundary value problems. Force and energy. Magnetostatic fields, Ampere's law, Biot-Savart law. Time varying fields, skin effect. Reflection and refraction of plane waves.

Prerequisites: Mathematics 69.201 and Physics 75.233 ★.

Text: Kraus and Carver, *Electromagnetics*.

First term: Lectures and tutorials three hours a week.

G.D. Cormack

Engineering 97.458 ★

Electronics II

The transistor is described in terms of its major characteristics when employed as a linear active device in signal amplification. Biasing, temperature compensation, bandwidth limitation are treated as well as class A, class B and class C amplifiers. Frequency multipliers, feedback leading to the design of oscillators, modulation and demodulation completes the linear part of the course. The use of the transistor as a switch in Schmitt Triggers, multivibrators, NOR, and NAND gates is discussed. Frequency division, shift registers and counters are treated. The application of other devices, such as 4-layer diodes, SCR and UJT's is included. The laboratory is completely project oriented and each student is expected to design and construct four circuits to meet given specifications.

Prerequisite: Engineering 97.357 ★.

Text: Ghaznavi and Seidman, *Electronic Circuit Analysis*.
References: Millman and Taub, *Pulse, Digital and Sampling Waveforms*; Seeley, *Electronic Circuits*.

First term: Lectures and tutorials three hours a week, laboratory four and a half hours a week.

G.D. Cormack, P.D. van der Puije

Engineering 97.468 ★

Solid State Electronics

Fundamentals of solid state physics. Injection and current flow processes in a semiconductor. Theory of the p-n junction; diode mechanism and characteristics. Bipolar transistor: internal theory, DC characteristics, charge control, Ebers-Moll relations; high frequency and dynamic properties, hybrid- π model. Device fabrication technology. Field effect transistors. Integrated circuits. Special purpose devices. Laboratory gives introduction to aspects of device mechanisms, characterization and fabrication technology.

Prerequisite: Engineering 97.357 ★.

Text: Streetman, *Solid State Electronic Devices*.

Reference: S.E.E.C., *volumes I and II*.

First term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

A.R. Boothroyd

Engineering 97.469 ★

Semiconductor Devices and Circuits

Fabrication processes for integrated circuits and discrete semiconductor devices: monolithic silicon planar process, thin film processes. Properties and design considerations for devices made by these processes: diodes, bipolar transistors, junction and insulated gate field effect transistors, resistors and capacitors. Design philosophies for integrated circuits. Linear and digital integrated circuit design examples. Project work involves the design and fabrication of integrated circuits.

Prerequisite: Engineering 97.468 ★.

References: Warner and Fordemwalt, *Integrated Circuits*; Grove, *Physics and Technology of Semiconductor Devices*.

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

A.R. Boothroyd

Engineering 97.475 ★

Electronic Properties of Materials

Electrical conduction and conductor materials; electrical insulators and dielectrics including ceramics, plastics, rubbers and composite materials; printed circuit and thin film techniques; electrical emission and emitter materials; magnetism and magnetic materials; optical properties including photographic images and luminescence; optical materials; electronic packaging materials.

Prerequisites: Engineering 88.270 ★ and 97.251 ★.

Reference: Rose, Shepard and Wulft, *The Structure and Properties of Materials, Volume IV, Electronic Properties*.

Second term: Lectures and tutorials, two hours a week,

laboratory three hours alternate weeks.

M.J. Bibby

Engineering 97.478 ★

Integrated Circuit Electronics

The course is concerned with the properties of digital and linear integrated circuits as circuit blocks and their application as components of larger systems. Aspects of design in terms of integrated circuits for the realization of required system functions are treated. An important part of the course is the laboratory in which students gain experience of the use of integrated circuits in project activities.

Prerequisite: Engineering 94.466 ★.

References: R.C.A., *Linear Integrated Circuits Handbook*; Fitchen, *Electronic Integrated Circuits and Systems*; Burr-Brown, *Operational Amplifiers, Design and Applications*.

Second term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

M.A. Copeland

Engineering 99.497

Engineering Project

As a part of the Fourth year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his engineering project proposal to the Dean of Engineering on or before October 1.

Officers of the School

Director

D. Shadbolt

Associate Director

J.W. Strutt

Professors

D. Moizer

D. Shadbolt

H. Sharon

J.W. Strutt

Associate Professors

R.G. Brand

M.R. Coote

J. Flanders

S.G. Haider

M. Hancock

L. Hegvold

E. Kayari

G.D. Milne

R.E. Osler

G.F. Sutton

D. Westwood

Assistant Professors

C.T. Aasen

F. Carter

R. Kuris

S. Loten

J. Mather

J. Pike

Adjunct Professor

R. Botros

Sessional Lecturers

J.-M. Comeau

W. Dawson

W. Freeman

R. Judge

B. Padolsky

C. Rioux

S. Shubin

E. Sutton

W. Throop

D. Wren

Photographic Supervisor / Instructor

H. Schade

Advisory Council

Douglas Shadbolt, *Chairman / Secretary*

Donald A. George, *Dean of Engineering*

D'Arcy Helmer, *Architect, Ottawa*

Ian MacLennan, *Vice President, Central Mortgage and*

Housing Corporation

Guy Desbarats, *Doyen, Faculté de l'Aménagement, Université de Montréal*

Michael Oliver, *President of the University*

W.J. Thomas, *Architect, Ottawa*

R.A. Wendt, *Dean, Division II, Faculty of Arts*

Bachelor of Architecture Degree Program

The Bachelor of Architecture degree is awarded on successful completion of a five-year program of studies. In the first two years the emphasis is on fundamental physical and human sciences as they relate to basic architectural issues. In the Third, Fourth and Fifth years of the program the curriculum is organized in two main categories. In one (the Major) the emphasis is on the broad general aspects of architecture. In the other (the Minor), options are offered in specialized subject areas related to architecture.

The curriculum in Architecture at Carleton is expected to provide the student with:

1. an understanding of our society with an emphasis on the identification of its building problems ranging from those of rudimentary shelter to the City itself, past, present and future (the contributions of many other disciplines will be made to enhance this understanding, e.g. Sociology, Anthropology, Psychology, History, Geography, Political Science, Economics);
2. the means to analyse problems experience in solving aspects of a wide range of building problems (the evolving design methodologies, systems analysis and the use of computers) will all be relevant here;
3. the means for development of individual ability to communicate, to define problems, to develop creative strategies and solutions to problems of built environments;
4. the technical and professional information and skill needed to transform the student's designs into completed buildings;
5. the opportunity to explore one or two subject areas in considerable depth, thus allowing the student to develop the beginnings of a specialized career within the broad field of architecture, e.g. administration and management, environmental control.

The curriculum will provide a highly varied experience for the student in lectures, seminars, studios and workshops. The emphasis on the program will be placed on individual growth and development. Insofar as it is feasible a large part of the student's contact with the teaching staff will be on a one-to-one basis.

The resources of the Ottawa area, including those of Carleton University, are unique in their concentration of specialized personnel, laboratories, libraries and other facilities. They provide the opportunity and capability for a wide range of multi-disciplinary academic and research programs in fields of architecture such as housing, urban environmental studies and industrialized building.

Admission Requirements

First Year

To be eligible for admission to the First year of the program of studies leading to the Bachelor of Architecture degree, the applicant must have passed the Qualifying University year examinations at Carleton University in five courses with a minimum grade point average of 4 and a grade of C- or better in Mathematics and in Physics; or he must present the Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus and Physics.

Refer to the section on Admissions in the General Regulations of the Calendar for additional admissions information (pp. 25-30).

Advanced Standing

Applications for admission with advanced standing to the Second or subsequent years of the program leading to the Bachelor of Architecture degree will be evaluated on an individual basis. Advanced standing for academic subjects completed at another university or college will be accepted if the subject is recognized as the equivalent of a corresponding subject offered at Carleton. Transfer of credit for studio work in an Architecture program completed at another university or college may be considered provided the grade is at least C- and the student shows evidence of aptitude for design studio work by the production of a portfolio of original drawings or photographs, etc., and as a result of an interview with a designated member of the faculty of the School.

All such courses accepted for transfer credit will be given a unit value equivalent to similar courses in the Architecture program at Carleton, so that the student will know at registration how many additional units will be required to complete the degree requirements.

Selective Admission

It should be noted that the number of student spaces in the School is limited. Because of this we expect that it may not be possible to grant admission to all applicants who meet the above requirements. Admission will therefore be on a selective basis with preference given to

those candidates who show the highest promise of success in the course. Members of the Admissions Committee of the School of Architecture are available by appointment during the academic year to answer enquiries regarding the School's program.

The Organization of the School

Six divisional committees have been established, each responsible for areas of study related to the curriculum of Architecture.

The divisions are responsible for integrating the content of their area with that of the other divisions.

The interdisciplinary nature of certain subject areas will be of interest to students outside the School of Architecture. The involvement of faculty and students from other disciplines in these courses is actively encouraged. At the same time, Architecture students are encouraged to take courses in other disciplines across campus as part of their educational program.

■ Colloquium Division

Relations between the Self and the Environment

■ Division A

History and Theory
Human Sciences
Environmental Sciences

■ Division B

Structures
Environmental Controls
Materials and Methods of Construction
Design Economics

■ Division C

General Planning
Policy Planning and Community Development
Management and Development
Professional Practice

■ Division D

Computations
Design Methodology
Design Education
Communications

■ Studio Division

Course Requirements

Units

In the School of Architecture each course in the curriculum will be assigned a unit value which will reflect the relative weight of the workload of that course in hours per week for the full academic year. The unit value is the sum of the assigned lecture hours, the assigned lab, problem, or discussion hours, and the hours of outside work expected to be required to handle the assignments and preparation for class work for one week. A student must successfully complete the prescribed course work, the value of which adds up to a total of at least 282 units, to fulfill the requirements for the Bachelor of Architecture degree (see Promotion, p. 294).

Each organizational division of the School will keep an up to date list of approved courses and unit values which is published in the document entitled *Recommended Course Patterns for the Elective Program 1975-76* and can be referred to in the School's Technical Data Room.

For elective courses taken outside the School of Architecture that are not on the approved list, the unit value will be determined on the following basis: One unit per lecture hour per term, plus one-half unit per laboratory hour per term. Fractions of a unit will be rounded out upwards.

Course Program

The program of study is outlined in the charts on the following pages and detailed course descriptions appear on p. 295-307. The program for the first two years is structured to provide the material on which the upper years of the program is built. The Third and Fourth year program is, for the most part, elective and the charts are intended for guidance only; they show an order in which courses may be taken to complete this phase of the program in two years. For the Fifth year a student must select one of the five curriculum options outlined in the charts. All programs are subject to change as details of courses and the organization of the School itself are developed.

Explanation of Chart Symbols

In the charts which follow, the number I refers to Lectures, II refers to Laboratories, etc., and III refers to Assignments. Notes a, b, c and d, refer to the descriptions that follow the charts.

First Year

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.100 (Colloquium I)	3	—	3	3	—	3	6
Architecture 76.101 (Man in His Built Environment)	2	—	2				2
Architecture 77.100 (Environmental Controls I)	2	—	2	2	—	2	4
Architecture 77.110 (Structures I)	2	—	2				2
Architecture 77.120 (Structures II)				3	2	3	4
Architecture 79.100 (Mathematics in Architecture I)	2	1	3	2	1	3	6
Architecture 79.110 (Introduction to the Architectural Use of Computers)	1	1	2	1	1	2	4
Architecture 79.130 (Communications)	2	2	2	2	2	2	6
Architecture 80.100 (Studio I)	2	1	17	2	1	17	20
	16	5	33	15	7	32	54

Second Year

Architecture 76.200 (Colloquium II)	3	—	3	3	—	3	6
Architecture 76.201 (The Natural Environment)	2	—	2				2
Architecture 76.220 (Modern Theories in Architecture)				2	—	2	2
Architecture 77.200 (Environmental Controls II)	2	3	3				4
Architecture 77.210 (Structures III)	3	2	3				4
Architecture 77.220 (Structures IV)				3	2	3	4
Architecture 78.200 (The City)				2	—	2	2
Architecture 79.200 (Mathematics in Architecture II)				2	1	3	3
Architecture 79.230 (Design Methods in Architecture)	1	—	1				1
Architecture 80.200 (Studio II)	2	1	19	2	1	19	22
Elective	3	—	3	3	—	3	6
(Any 100 or 200 level course to which the student is admissible); may be replaced by Independent Study (Note c)							
	16	6	34	17	4	35	56

Third Year

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.300 (Colloquium III)	1½	1½	3	1½	1½	3	6
Studio Elective (note a)	2	1	25				14
Studio Elective (note a)				2	1	25	14
Concentration Electives (Notes b and c)	6	—	6	6	—	6	12
Workshop Elective (note b)	—	6	6	—	6	6	6
Workshop Elective (note b)					6	6	6
	9½	8½	40	9½	8½	40	58

Fourth Year

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.400 (Colloquium IV)	1½	1½	3	1½	1½	3	6
Studio Elective (Note a)	2	1	25				14
Studio Elective (Note a)				2	1	25	14
Concentration Electives (Notes b and c)	6	—	6	6	—	6	12
Workshop Elective (Note b)	—	6	6	—	6	6	6
Workshop Elective (Note b)					6	6	6
	9½	8½	40	9½	8½	40	58

Fifth Year (Option 1)

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.450 (Colloquium V)	1½	1½	3	1½	1½	3	6
Architecture 80.491 (Terminal Project) (note d)	—	1	29	—	1	29	30
Minor Stream Thesis (note d)	—	1	25	—	1	25	26
	1½	3½	57	1½	3½	57	62

Fifth Year (Option 2)

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.450 (Colloquium V)	1½	1½	3	1½	1½	3	6
Architecture 80.491 (Terminal Project) (note d)	—	2	28	—	2	28	30
Minor Stream Paper (note d)	—	1	9	—	1	17	14
Concentration Elective or Workshop Elective (notes b and c)	6	—	6				6
		6	6				
(Concentration Elective option)	7½	4½	46	1½	4½	48	56
(Workshop Elective option)	1½	10½	46	1½	4½	48	56

Fifth Year (Option 3)

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.450 (Colloquium V)	1½	1½	3	1½	1½	3	6
Architecture 80.453 (Terminal Studio)				2	1	33	18
Minor Stream Paper (note d)	—	1	11	—	1	15	14
Studio Elective (note a)	2	1	25				14
Concentration Elective or Workshop Elective (notes b and c)	6	—	6				6
	—	6	6				
(Concentration Elective option)	9½	3½	51	3½	3½	51	58
(Workshop Elective option)	3½	9½	51	3½	3½	51	58

Fifth Year (Option 4)

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.450 (Colloquium V)	1½	1½	3	1½	1½	3	6
Architecture 80.453 (Terminal Studio)				2	1	33	18
Minor Stream Thesis (note d)	—	1	37	—	1	13	26
Concentration Elective or Workshop Elective (notes b and c)	6	—	6				6
	—	6	6				
(Concentration Elective option)	7½	2½	46	3½	3½	49	56
(Workshop Elective option)	1½	8½	46	3½	3½	49	56

Fifth Year (Option 5)

Hours per week	First Term			Second Term			Units
	I	II	III	I	II	III	
Architecture 76.450 (Colloquium V)	1½	1½	3	1½	1½	3	6
Architecture 80.453 (Terminal Studio)				2	1	33	18
Minor Stream Paper (note d)	—	1	27				14
Concentration Electives (notes b and c)	3	—	3	3	—	3	6
Workshop Electives (notes b and c)	—	6	6	—	6	6	12
	4½	8½	39	6½	8½	45	56

Notes

a. Studio Electives

The studios in the Third and Fourth year of the program are organized to investigate key problems in Architecture within such subject areas as dwelling, education, work and recreation environments. The organization is explained in the document *Recommended Course Patterns for the Elective Program, 1975-76*, which can be referred to in the School's Technical Data Room.

A student will elect a total of four subject-oriented studios, three of which must be within different subject areas.

b. Concentration and Workshop Electives

The student will select a pattern of courses and workshops which over the last three years of the program will provide a background in one of the several subject areas in which concentrated study and specialization is to be encouraged. Concentration and workshop electives are directed toward the development of the essential skills of information acquisition and utilization, analysis and synthesis in problem-solving situations.

Workshops are organized to develop a thorough knowledge of an area of concentration by open-ended problem solving to a depth not possible in the more general studio program or in the laboratory and seminar sections of lecture courses.

Some workshops include the formal presentation of knowledge, but, in all, the emphasis is on the students' synthesis of solutions to problems.

Workshops are seen as a link between the structured knowledge and analytic approach of most lecture courses, and the wholistic integrative approach of the studio courses. It is recommended that the student also consult the Industrial Design section of the calendar in choosing workshops and concentration electives.

c. Independent Study

A student enrolled in the Bachelor of Architecture program may propose, and may be permitted to undertake, an independent study in lieu of elective courses up to a total of 6 units in Second year, 12 units in each of the Third and Fourth years and up to 6 units in the Fifth year.

The purpose of this provision is to allow more flexibility for students to pursue a line of investigation in their own way, free of normal constraints of timetable and university locale. The independent study is to make no demands on University faculty other than those required for approval and evaluation.

Serious scholarship and research is expected and proper documentation will be required. The study will be subject to the following conditions:

1. The student's standing must be clear with no deficiencies in required courses.

2. The student will register for an independent study in the term or session during which the work is to be completed. The student must submit the proposal in writing to the adviser at the time of registration outlining the objectives and direction of the study, the time and locale, resources available, submission date and other pertinent information. The subject area of the study should be identified with respect to the interests of the organizational divisions of the School of Architecture.

3. The student must have obtained the prior approval of the appropriate divisional committee and the prior agreement of a member of the teaching staff in that Division to act as assessor for the study; that staff member will then be responsible for approval and evaluation. The divisional committee chairman's written recommendations, comments, and the unit value to be given for the study must accompany the proposal when presented to the adviser for course approval.

4. The study must be completed within the specified time and in a form agreed upon by the student and the divisional assessor.

5. The student's adviser will deliver the completed and approved proposal to the Records Office of the School of Architecture to be filed with the student's course records.

d. Final Year, including Terminal Project and Completion of the Minor Stream

Before the end of the session preceding the final year of the program, the student will enter into discussion with the adviser and select one of the five options as outlined in the charts. Depending on the option chosen, the student and the adviser will first select topics, then select tutors for the Terminal Project, Minor Stream Paper, and Minor Stream Thesis. Lists of tutors will be prepared by divisional chairmen and made available. The students and tutors will prepare brief written proposals to be submitted for discussion and approval by the appropriate divisional committees. At the time of registration in the Fifth year, course approval in these courses will be granted only upon submission by the student to the adviser of the written proposals approved as above. The adviser will then deliver the proposals to the Records Office of the School of Architecture to be filed with the student's course records.

Terminal Project

Following registration in the final year, the student will work independently throughout the session, subject to weekly sessions with the tutor and monthly presentations to a review committee. The review committee will be comprised of three faculty members one of whom will be the tutor. During the First term of the final year the student will define the process by which the necessary research and development will be undertaken and

prepare a report which will follow guidelines established by the Studio Division. The Terminal Project will be due on the last day for handing in term assignments in the Second term.

The review committee will evaluate the Terminal Project and it will be graded pass or fail. Those students whose Terminal Projects have been graded Pass will prepare for an oral and visual presentation in a public review open to all faculty, students and visitors. This will take place within three weeks after the last day of classes. Subsequent to this review a letter grade will be determined.

Completion of the Minor Stream

As well as the differences in time and expectation in the Minor Stream Paper and Minor Stream Thesis outlined below, there are distinct differences in their purpose and the approach to them. The former is designed for those students interested in drawing together the work of previous years, the latter is designed for those students interested in entering a field of research. The paper is based primarily on secondary data while the thesis will be based on both secondary data and observations leading to extension.

Minor Stream Paper

The Minor Stream Paper allows the student to draw together and formulate conclusions about particular aspects of the work done in the Minor stream in preceding years. The paper is expected to illustrate the student's depth and breadth of understanding in a particular area of the Minor Stream (e.g. environmental sciences) and ability to express this knowledge in written form. The student may regard this paper, from the point of view of time and work expected, as being approximately equivalent to two full courses in the Minor stream. During the final year the student will work independently throughout the session subject to weekly review sessions with the tutor. The student will undertake an approved program of reading which together with previous work will form the basis for the paper written. The paper must be typewritten and otherwise conform to an agreed format and must be submitted to the tutor by the last day for handing in term assignments specified in the University Calendar for the relevant term. The student's tutor will be responsible for the evaluation of the paper.

Minor Stream Thesis

The Minor Stream Thesis represents a conclusive statement for those students chiefly interested in integrating the work they have been doing in the Minor stream. The thesis must show the student's knowledge and understanding of the topic, familiarity with current work in the field, ability to work independently, evidence of proper research, and consistency in presentation techniques. In addition, and on the basis of the preceding requirements,

the thesis must put forward conclusions which constitute an original approach or contribution to the current body of knowledge on the subject. The thesis may be considered as approximately equivalent to four full courses in the Minor stream.

Following registration in the Fifth year, the thesis student will work independently throughout the session subject to weekly sessions with the tutor, a monthly review before a review committee of at least three persons comprising the tutor, the appropriate divisional chairman and a third faculty member chosen jointly by the student and the thesis tutor and approved by the divisional chairman. (In the event that the thesis tutor is also the divisional chairman, the student and the divisional chairman will select another committee member.) With the approval of the divisional chairman, one of the three members of the committee may be selected from outside the School of Architecture. In addition to the monthly review of work, the thesis student must prepare for a major review of the direction and content of the work in preparation by the thesis committee at the end of the First term. The thesis will be due on the last day for handing in term assignments specified in the University Calendar for the Second term. The thesis will be typewritten and otherwise presented according to an agreed format and submitted in two copies to the thesis tutor and the appropriate divisional chairman.

The thesis review committee will evaluate the thesis and grade it *Pass* or *Fail*. Those theses graded *Pass* will be made available in the School's Technical Data Room for three weeks, to other faculty, students and interested persons for their criticism to be taken into account in establishing the final letter grade.

General Information

Counselling and Course Pattern Approval

The program of study in Architecture is necessarily structured to afford a broad general education in Architecture (the Major) and a deeper understanding of a selected subject area within the field of Architecture (the Minor).

During the First term of the First year and for the remainder of the course, each student will be assigned a full-time faculty member as adviser who will enter into discussions with the student to assist in defining educational objectives and helping to select the individual courses of study leading to completion of the program. Advisers may be changed with the consent of the Director. A document entitled *Recommended Course Patterns for the Elective Program 1975-76* can be referred to in the School's Technical Data Room and is intended for use by the students and their advisers as guidelines for the selection of elective courses.

The adviser will thereafter be responsible for approving the course pattern and course changes of the assigned individual students.

Materials, Supplies and Field Trips

The program in Architecture, particularly the studio course, requires that the student produce large quantities of drawings and models, as well as ozalid prints, photostats, and other photographic media, reproductions of drawings, reports, etc. all of which can be costly. While the instructors are careful to keep the required presentations to a minimum, the student is free to, and does, experiment with many techniques and media, some of which are expensive. The School provides some of this material but the student is expected to absorb the larger portion of the cost and should budget accordingly.

Equipment for drawing, photography, etc. should be regarded as an investment, as good tools are essential, and last a long time if properly cared for. An equipment list is provided as a guide to the entering student and the staff assists the new class to obtain reduced prices by bulk purchases. A good quality 35mm. camera is a very useful but not mandatory item on this list and most students find they use it to such an extent that they wish to purchase one during the first year or two of the program.

Field trips to study urban development projects in other cities are a regular feature of the program. The School usually absorbs part of the cost of transportation but the student is expected to meet most other expenses while away.

Experience indicates that the student should budget about \$350 for materials, equipment and field trips per year, not including a camera.

Grading System

Except for the three special instances listed below, grading is consistent with the general university regulations on p. 37.

Deferred

Students who were absent from final exams for medical or personal reasons or students in courses with no final examinations, but who were unable to complete term work for medical or personal reasons, may apply to the Committee of Standing, Promotion and Awards of the School of Architecture for a deferred grade (Noted *Def*). This designation may be used only when an instructor has been notified by the committee that a deferred grade has been approved. The notation *Def* must be replaced by a letter grade within the time period stipulated by the Committee on Standing, Promotion and Awards of the School of Architecture. If the notation is not changed to

a letter grade (through regular change of grade procedures) within the specified time period it will be replaced with the grade *F*.

Incomplete

A notation of *Incomplete* may, subject to the approval of the Director of the School, be assigned to a course in which the student has been granted the privilege of submitting a project after the final deadline date. This notation will be permissible only in exceptional cases (e.g. medical or other special reasons) and must be replaced with a letter grade within 30 days of the end of classes. If the notation of *Incomplete* is not changed to a letter grade (through regular change of grade procedures) within 30 days of the end of classes the notation will remain as a permanent entry for that registration in the course. The student may, however, at the discretion of the faculty, register to repeat the course in order to obtain a letter grade in the subject.

Pass

To be used for terminal project and Minor stream thesis report. This is a preliminary grade equivalent to C- or better which qualifies the student to present his work at the final review. This grade is for internal use only and will not be reported to the Registrar.

Course Load

During the first two years of the program in Architecture, because of the limited number of student spaces, all students (with the exception of those students admitted with advanced standing or those who are repeating course work) will be required to undertake the full unit workload as set out in the course outlines on p. 287 of the Calendar or as modified by these regulations.

Academic Standing

For the purpose of determining promotion at the end of the First and Second year of the course in Architecture, grade point average excluding the studio course will be calculated each year after the spring examinations. For the purpose of determining promotion to the final year of the course in Architecture, grade point average of the courses taken in the Third and Fourth years excluding the studio courses will be calculated. This will be the aggregate total of the products of the grade points achieved, times the unit value of each course divided by the number of units undertaken. Students admitted with advanced standing will be credited the courses taken elsewhere. These courses will not be included in the grade point average calculation.

Studio Courses in First, Second and Fifth Years

A minimum grade of C- is required in studio courses in First, Second and Fifth years. No supplemental examinations are allowed in these courses and if the required grade is not achieved the course must be repeated.

Promotion

Students in the First and Second years of the program who pass all courses taken and have a course grade point average of 3.5 or better will be promoted to the next year of the program. Students will be promoted to the final year of the program who have completed the course requirements of the first two years of the program, have compiled 12 units in Colloquia, 56 units in studio electives, 24 units in concentration electives, 24 units in workshop electives and have a course grade point average without studio of 3.5 or better and a studio grade point average of 4.0 or better in the required 56 units of studio electives.

Supplemental Examination Privileges

A student in the First or Second year who passes the studio course taken, whose grade point average is less than 3.5 or who has failed other courses may write up to two supplementary or special supplementary examinations each year in order to clear his/her standing.

In addition, a student who achieves a grade of B or better in studio courses may write one additional special supplementary examination in order to clear standing. All supplemental examinations will be graded for calculation of course grade point average. Both First and Second term winter session supplemental examinations will be written at the supplemental examination period in August.

Deficiencies

If, after completion of supplementary examinations, a First or Second year student has not cleared standing as stipulated in the section on "Promotion", the student's lowest grade may be omitted and the course grade point average recalculated. If the latter is above 3.5, the student may carry the course omitted in the calculation as a deficiency, subject to the following conditions:

1. A student may proceed to the Second or Third year and must either repeat the failed course or take an approved substitute in place of the mandatory elective in Second year;
2. All deficiencies must be cleared before a student will be admitted to the final year of the course.

Failure and Probation

A student who cannot or has not cleared standing in any of the ways given above will be considered to have failed the year. The student will be required to repeat all courses in which the grade is less than C- and pass each of them to a standard of C- or better. Until standing is cleared in this way, the student will be considered to be on probation.

Admission to the School on a partial program for this purpose is at the discretion of the faculty. A student may not be allowed to enrol in the School in the next succeeding session and may be advised to withdraw from the program in Architecture.

Students on Probation

A student who is classified as on probation may be allowed to take additional courses in order to make up a full-time work load and to obtain units towards elective requirements.

To clear his/her standing the student on probation must pass the repeated courses with a grade of C- or better.

If the student fails one or more of these courses probation will be continued and the student may not proceed with any further Architecture courses until standing is cleared. The student will be allowed to take supplementary examinations for this purpose, where these are available, but failure to clear standing in three successive attempts means that the student will be required to withdraw.

Summer Session Studio Program

A special subject-oriented studio elective course will be offered during the Summer session, for students in Architecture, subject to a minimum enrolment of ten students. To be admitted to this course a student must be eligible for promotion to at least the Third year of the program. A student enrolling in the Summer School Studio to make up a deficiency or to get in phase with the normal program will still normally have to meet the requirement that three out of four elected subject-oriented studios must be within different subject areas, but in exceptional cases, on appeal, this requirement may be waived.

Scholarships and Awards

The Faculty of the School will recommend students to the Senate for scholarships and awards available to the School. For this purpose an overall grade point average including the studio course will be calculated. Then the

studio grade, the course grade point average or the overall grade point average will be used as is most appropriate for the nature of the award.

Students admitted with advanced standing whose grade point average may not represent a true measure of their worth will be given individual consideration.

Courses Offered

The courses are listed under the organizational divisions of the School and grouped in categories of *Colloquia*, *Required Courses*, *Concentration Electives* and *Elective Workshops* and *Studios* as appropriate.

Colloquium Division

The central focus of the colloquia is the relation between the self and the environment. The colloquia are designed to help each student to develop, synthesize, publicly argue, extend individual architectural, social and broader environmental positions. A selected number of morally and ethically charged issues and viewpoints of particular concern to designers are explored in a five-course sequence.

During this time, each student is expected to become conversant with the alternative bodies of knowledge, and belief systems underlying such issues and viewpoints.

■ Colloquia Series

Architecture 76.100 (6 units)

Colloquium I

The theme will be the environment as differentiated and integrated by the individual. Modules include: conceptualization, the self, rules, community. The emphasis is on individualized opportunities for exploring conceptually and communicatively.

Day division: Lectures, films, visiting speakers and experiential techniques, three hours a week.

R. Kuris, C. Rioux, W. Throop

Architecture 76.200 (6 units)

Colloquium II

A critical assessment of technology and contemporary issues such as quality of life, the human condition, environmental degradation, individual freedom, choice of lifestyles, control of new technology and other concerns endemic to western industrialized culture.

Day division: Lectures three hours a week.

S. Loten

Architecture 76.300 (6 units)

Colloquium III

The theme will be the natural environment. Man/environment interactions and interdependencies will be investigated through an understanding and appli-

cation of basic biological, hydrological, geological, climatic and ecological concepts.

Day division: Lecture one and half hours a week, seminar-discussion two hours a week.

J. Pike

Architecture 76.400 (6 units)

Colloquium IV

The theme will be "exploratory future" and a wide variety of topics will be discussed including: alternative lifestyles, technological possibilities, man-land relationships. The emphasis is upon the inner person.

Day division: Lecture one and a half hours a week, seminar-discussion two hours a week.

R. Judge

Architecture 76.450 (6 units)

Colloquium V

The theme is the resolution of conflict. The objective is the active integration of self with contexts. The process entails analysis, criticism, synthesis, and extension as an effort towards comprehensively and responsibly encountering a diversity of situations and persons. Emphasis is placed upon the expression of the total process.

Open only to architectural students having completed the four previous colloquia.

Day division: Seminar three hours a week.

E. Sutton

Division A

Division A comprises that part of the Architecture curriculum which deals with the following interrelated themes: culture, history, and theory; human considerations in the built environment; the natural and built environment.

History and Theory

Required course:

76.220 Modern Theories in Architecture

Concentration electives:

76.203 Theories of Architectural Design I

76.204 Theories of Urban Design I

76.205 Theories of Landscape Design I

76.206 Theories of Industrial Design I

76.207 Theories of Visual Design I

76.208 Theories of Architectural Design II

76.209 Theories of Urban Design II

76.210 Theories of Landscape Design II

76.211 Theories of Industrial Design II

76.212 Theories of Visual Design II

76.302 History of Canadian Environment

Recommended sequence Concentration electives:

Architecture 76.203, 76.208, 76.204, 76.209, 76.205, 76.210, 76.206, 76.211, 76.207, 76.212, 76.302.

Human Sciences

Required Course:

76.101 Man in His Built Environment

Concentration electives:

76.324 Social Environment Systems

76.326 Human Factors in Environmental Design

76.423 The Human Development/Built Environment Interface I

76.424 The Human Development/Built Environment Interface II

Recommended sequence Concentration electives:

Architecture 76.326, 76.324, 76.423, 76.424.

Elective Workshops:

76.325 Man-Environment Interface I

76.425 Man-Environment Interface II

76.426 Man-Environment Interface III

Environmental Sciences

Required course:

76.201 The Natural Environment

Concentration electives:

76.205 Theories of Landscape Design I

76.210 Theories of Landscape Design II

Recommended sequence Concentration electives:

Architecture 76.205, 76.210.

■ *Required Courses*

Architecture 76.101 (2 units)

Man in His Built Environment

Introduction to man's perceptions, structuring, use and meanings of space, with emphasis on the design implication. Concepts from physiology, psychology, sociology and anthropology are used to help understand the inter-relationships between man and the physical environments which he creates, and to contribute creatively to his design processes.

Day division, First term: Two hours a week.

G. Milne

Architecture 76.201 (2 units)

The Natural Environment

The natural environment as an integral element in architecture. Design of outdoor space and environmental factors in siting buildings. How buildings meet the ground.

Day division, First term: Two hours a week.

J. Mather

Architecture 76.220 (2 units)

Modern Theories in Architecture

To develop a context within which modern theories of design may be properly treated and established to play

a creative role in architecture; study of the evolution of new architectural modes in the twentieth century. To be taken in conjunction with Architecture 80.200.

Day division, Second term: Lectures two hours a week.
S. Loten

■ *Concentration Electives and Elective Workshops*

Architecture 76.203 (3 units)

Theories of Architectural Design I

An introductory survey extending to both vernacular and monumental construction in a wide range of cultural traditions from prehistoric to medieval times considered in terms of social investment, functions, cultural contexts, formal symbolism, material resources, environmental conditions, and structural systems.

Alternates with Architecture 76.208.

Day division, First term: Lectures three hours a week.
S. Loten

Architecture 76.204 (3 units)

Theories of Urban Design I

History of the city as a physical artifact. Study of the physical growth of cities as an expression of developing social and cultural values and structures, as well as with reference to aesthetic ideals. See also related workshop, Architecture 78.345.

Day division, First term: Lectures three hours a week.

Architecture 76.205 (3 units)

Theories of Landscape Design I

An historical consideration of man's relationship to nature as this can be determined through his designs on the land in gardens and in the urban context. Beginning in ancient times and looking at the ordering of outdoor space until the end of the seventeenth century, the course will deal with the cultural context and physical factors that have given rise to varying approaches to the land.

Day division, First term: Lectures three hours a week.
J. Mather

Architecture 76.206 (3 units)

Theories of Industrial Design I

Listed as Industrial Design 85.200.

Architecture 76.207 (3 units)

Theories of Visual Design I

An introduction to the field of visual design including an historical overview of the development of design theories, principles, and methods. See also related workshop, Architecture 79.340.

Day division, First term: Lectures three hours a week.
H. Sharon, P. Sharp

Architecture 76.208 (3 units)

Theories of Architectural Design II

Chronological continuation of Architecture 76.203 from medieval to modern era with special emphasis on traditions other than the western European, and on the

emergence of new architectural modes in the twentieth century. Alternates with 76.203.

Day division, First term: Lectures three hours a week.
S. Loten

Architecture 76.209 (3 units)

Theories of Urban Design II

Consideration of the forces, in different periods, determining the character and principle function of cities: military, religious, commercial, political, industrial, post-industrial and utopian. Readings in the fields of literature, art, futures and history.

Prerequisite: Architecture 76.204, or permission of the instructor.

Day division, Second term: Lectures three hours a week.

Architecture 76.210 (3 units)

Theories of Landscape Design II

This course continues the study begun in Architecture 76.205 focussing on the period from the eighteenth century to the present and dealing with the origins of contemporary approaches to the land.

Prerequisite: Architecture 76.205, or permission of the instructor.

Day division, Second term: Lectures three hours a week.
J. Mather

Architecture 76.211 (3 units)

Theories of Industrial Design II

Listed as Industrial Design 85.201.

Architecture 76.212 (3 units)

Theories of Visual Design II

An analytical study of design principles, including arrangement, composition, form, order, rhythm, colour and texture. There will be a concentration on two rather than three dimensional design.

Prerequisite: Architecture 76.207, or permission of the instructor.

Day division, Second term: Lectures three hours a week.
H. Sharon, P. Sharp

Architecture 76.302 (3 units)

History of Canadian Environment

Evolution of the Canadian landscape from Confederation to the present with emphasis on the influence of recreation, conservation, transportation, the agricultural landscape and new forms of collective settlements. This course in the latter half will operate as a seminar, with students delivering papers on aspects of Canadian culture that affect the landscape.

Day division, Second term: Lectures three hours a week.
J. Mather

Architecture 76.324 (3 units)

Social Environment Systems

An examination of relationships between man and the environments he has built. The course will consider this "built environment" as the product of social processes and as an influence on these processes at varying levels

of organization. Lectures by the Faculty of Architecture and Sociology and other departments will be supplemented by guest lectures and readings.

Day division, First term: Lectures three hours a week.
G.D. Milne

Architecture 76.325 (6 units)

Workshop: Man-Environment Interface I

Seminars, individual and interdisciplinary team projects developing and contributing knowledge and expertise in the area of relationships between man and the environment he has created.

Day division, First and/or Second term: Six hours a week. Offered concurrently with Architecture 76.425 and 76.426.

(Architecture 76.324 and 76.325 are listed in the Department of Sociology as the two-term course Sociology 53.335.)

Architecture 76.326 (3 units)

Human Factors in Environmental Design

Relation of human physiology and psychology to various modes of influence, with an emphasis on the built environment, applications to environmental design of methods and findings from physiology and psychology.

Day division, First term: Lectures three hours a week.

Architecture 76.423 (6 units)

The Human Development/Built Environment Interface I

Views of man as a developing being interacting with his physical and institutional environment: critical facilities, encounters and change-strategies in this process of interaction; the content of human development; the concept of developmental sequences, stages, and life cycles; total environments and world views. Emphasis on changing individuals, physical and institutional environments.

Prerequisite: Architecture 76.324, or permission of the instructor.

Day division, First term: Lectures three hours a week. Seminar three hours a week.

C.T. Aasen (*Architecture*), C.C. Gordon (*Sociology*)

Architecture 76.424 (3 units)

The Human Development/Built Environment Interface II

Applies the developmental insights acquired through Architecture 76.423 to particular problem areas such as: education and learning environments; leisure and leisure environments; housing and the family. Explores how, why, when and where the built environments facilitate or retard developmental processes.

Prerequisite: Architecture 76.423, or permission of the instructor.

Day division, Second term: Lectures three hours a week.
C.T. Aasen (*Architecture*), C.C. Gordon, (*Sociology*)

Architecture 76.425 (6 units)

Workshop: Man-Environment Interface II

Examination of developing human beings and the built environment, identification of problem areas, and generation of new physical and human patterns which adjust to changing environmental conditions while enhancing human development.

Prerequisite: Architecture 76.424, or permission of the instructor.

Day division, First and/or Second terms: Six hours a week. Offered concurrently with Architecture 76.325 and 76.426.

Architecture 76.426 (6 units)

Workshop: Man-Environment Interface III

Using knowledge, criteria and research methods from the human sciences, students in this workshop study and make proposals for changing environmental designs or for creating new designs. The emphasis is on complex environments, with in-depth explorations of part or all of the design process, tending towards synthesis.

Prerequisite: Architecture 76.424, or permission of the instructor.

Day division, First or Second term: Six hours a week. Offered concurrently with Architecture 76.325 and 76.425.

Architecture 76.488

Independent Study

See note c, p. 291.

Architecture 76.489

Minor Stream Thesis

See note d, p. 292.

Architecture 76.490

Minor Stream Paper

See note d, p. 292.

Division B

Division B comprises the part of the curriculum in Architecture that is concerned with building science and construction technology.

The content of this division is broken down into four interrelated areas: the stability and performance of the building enclosure under loading conditions, and an understanding of structural limitations and possibilities; the means of achieving the establishment and maintenance of the built environment within the existing physical environment; the performance, substance and servicing of the built environment; the study of resource control.

Structures

Required courses:

77.110 Structures I

77.120 Structures II

- 77.210 Structures III
77.220 Structures IV

Concentration electives:

- 77.314 Structural Analysis
77.316 Design of Structures of Homogeneous Materials
77.318 Design of Structures of Composite Materials
77.420 Structure and Form
77.424 Structural Planning in Architecture

Elective workshops:

- 77.326 Space Enclosure Systems
77.426 Structural Synthesis
77.428 Structure and Form

Environmental Controls

Required courses:

- 77.100 Environmental Controls I
77.200 Environmental Controls II

Concentration electives:

- 77.300 Lighting in Architecture
77.302 Acoustics in Architecture
77.401 Interaction of Environmental Factors

Elective workshop:

- 77.325 Building Sub-Systems Design

Materials and Methods of Construction

Concentration electives:

- 77.320 Industrialized System Building: Principles, Classification and Selection
77.330 Performance of Building Materials
77.432 Manufacturing Processes and Materials Engineering I
77.440 Design for Construction

Elective workshops:

- 77.335 Materials Application
77.425 Industrialized System Building

Design Economics

Concentration elective:

- 77.350 Design Economics

■ *Required Courses*

Architecture 77.100 (4 units)

Environmental Controls I

Design for environmental control; perception of thermal, visual and acoustic conditions; comfort parameters; enclosure performance.

Day division: Lectures two hours a week.

R. Botros, E. Kayari

Architecture 77.110 (2 units)

Structures I

To develop a context within which structures may be properly treated and established to play a creative role in architecture. Universal nature of structure, equilibrium, conflicts of directions, forces and their various manifestations, material properties, basic modes of load transfer, natural and man-made structure, various structural classifications. To be taken in conjunction with Architecture 80.100.

Day division, First term: Lectures two hours a week.

D. Westwood

Architecture 77.120 (4 units)

Structures II

Development of understanding of and skills in statics and strength of structures in order to realize their usefulness in synthesizing alternate structural schemes. Introduction to basic concepts in structural analysis. Laws of statics and strength of structures, mechanical properties of structural materials. Application of statics to analysis of such structural elements as beams, columns, frames, cables, and arches within the context of total building structures.

Day division, Second term: Lectures three hours a week, problems two hours.

Architecture 77.200 (4 units)

Environment Controls II

Continuation of Architecture 77.100 with additional coverage of building servicing and the interaction of environmental conditions with space enclosures. Aspects of the course are extensively reinforced by applications in Architecture 80.200.

Day division, First term: Lectures two hours a week, laboratory three hours.

M. Hancock

Architecture 77.210 (4 units)

Structures III

Development of awareness and understanding of and basic skills in structural engineering design in the context of the total building problem. General criteria in structural design: concept, form, materials and methods, safety, serviceability and economy. Load intensities, safety factors and building codes. Design of structural elements of wood, steel, reinforced concrete, masonry. Design of simple connections. Case studies and examples from existing structures.

Day division, First term: Lectures three hours a week, problems two hours.

Architecture 77.220 (4 units)

Structures IV

The role of structural considerations as vital design determinants in architecture at an introductory level. Structural systems selection process. Classification and discussion of structures on the basis of structural concept, materials and methods of construction: wood, steel, reinforced concrete, masonry and miscellaneous

composite systems. Integration with non-structural systems in the building.

Day division, Second term: Lectures three hours a week, problems two hours.

S.G. Haider

■ *Concentration Electives and Elective Workshops*

Architecture 77.300 (3 units)

Lighting in Architecture

Specifications for lighting based on visual performance and subjective preference. Appropriate design techniques for daylight and electric light assessed by model and full scale installations. Topics may include: derivation of units, scalar and vector illumination, subjective appraisal and preferred lighting configurations, I.E.S. recommendations, working plane and luminance design, display lighting, exterior lighting.

Day division, First term: Lecture two hours a week, laboratory two hours.

Architecture 77.302 (3 units)

Acoustics in Architecture

Recapitulation of fundamentals. Sound in enclosures including interior design of auditoria and special applications. Sound reproduction and reinforcement systems. Acoustic privacy and protection, sound control in buildings, materials for noise control, community noise, industrial noise. Acoustic measurements and instrumentation. See also Engineering 88.447 ★.

Day division, First term: Lectures two hours a week, laboratory one hour.

R. Botros

Architecture 77.314 (5 units)

Structural Analysis

Basic assumptions and theories in structural analysis. Analysis of statically determinate truss systems, beam and frame assemblies. Influence lines and determination of critical load combinations for structural design. Elastic and inelastic stability of columns, frames. Approximate methods for the analysis. Structural deformations. Formulation and discussion of simple problems in structural dynamics. (Equivalent course: Engineering 82.420 ★.)

Day division, First term: Lectures three hours a week, problem laboratories three hours every two weeks.

Architecture 77.316 (5 units)

Design of Structures of Homogeneous Materials

Design of structural components of such "homogeneous" materials as metals, plastics, wood. Primary emphasis on structural metals like steel and aluminum. Design of connections. Design of simple assemblies of structural components; floor systems, trusses, frames. Discussions of structural behaviour. Introduction to plastic design. Term project such as complete design of a simple steel frame structure.

Day division, Second term: Lectures three hours a week,

laboratories three hours every two weeks.

Offered alternate years to Architecture 77.318. When not offered see Engineering 82.425 ★ as alternative.

Architecture 77.318 (5 units)

Design of Structures of Composite Materials

The design of structures using composite materials of two or more components whose combined properties can be varied by altering the proportions and arrangements of the components. The influence of the properties of matrix and reinforcement will be studied, and the consequences developed in terms of design in steel reinforced concrete and glass fibre reinforced plastic. Other composites such as whisker reinforced metals and others developed to resist wear and impact will be reviewed.

Day division, Second term: Lectures three hours a week, laboratory three hours every two weeks.

Offered alternate years to Architecture 77.316.

Architecture 77.320 (3 units)

Industrialized System Building: Principles, Classification and Selection

A study of the principles of this approach to design and manufacture of buildings. A brief survey of the historical factors forcing changes in the building industries of the world. This will be developed by a review of existing systems using the technique of multi-parameter classification and selection by profile matching.

Day division, First term: Lectures three hours a week.

Architecture 77.325 (6 units)

Workshop: Building Sub-Systems Design

Evaluation of selected interacting influences within complex systems and the synthesis of design solutions tending towards optimal performance when other influences are excluded. The workshop will concentrate on the flow of objects, fluids, energy and people into, through, and out of environmental enclosures.

Day division, First and/or Second term: Six hours a week.

Architecture 77.326 (6 units)

Workshop: Space Enclosure Systems

The exploration of space enclosure systems for a wide range of environments.

Prerequisite: Architecture 79.320, or permission of the instructor.

Day division, Second term: Six hours a week.

J. Strutt

Architecture 77.330 (6 units)

Performance of Building Materials

Study of materials available for building with emphasis on their structure, properties, application and sustained performance over the life of a building.

Day division: Lectures, laboratories and field trips four hours a week.

Architecture 77.335 (6 units)

Workshop: Materials Application

Application of building materials, including the forming of building parts and the design of joints for performance and assembly. Practical constructions using new technology will be emphasized.

Prerequisite: Architecture 77.330, or permission of the instructor.

Day division, First and Second terms.

Architecture 77.350 (3 units)

Design Economics

Principles of building economics. Determinants of building costs and their prediction. Discussions on uncertainty and investment economics. Systems and techniques of creative cost control for buildings during schematic design, design development, construction document preparation and construction. Prime emphasis on the economic evaluation and choice from among alternatives during all phases of design process.

First or Second term: Three hours a week.

W. Dawson

Architecture 77.401 (3 units)

Interaction of Environmental Factors

An extension of Architecture 77.200. A study of the way in which heat, light and sound interact with building enclosure and social use, with special emphasis on the development of buildings with low energy requirements in operation.

Day division, First or Second term: Lectures two hours a week, laboratory two hours.

Architecture 77.420 (3 units)

Structure and Form

The challenge of space enclosure and spanning and its relationship to architectural form in history. Basic modes of force transfer and corresponding elements of structural form. Aggregation of form elements within the laws of geometry and physical stability. Discussion of physical-structural and form characteristics of a wide variety of structural types like cables, membranes, shells, arches, domes, trusses, slabs, folded plates, beams, frames, grids.

Day division, First term: Lectures three hours a week.

S.G. Haider

Architecture 77.424 (3 units)

Structural Planning in Architecture

The nature of structural planning problems; general criteria in structural planning; functional, technical, economic and form considerations; loads, classification and estimation; building codes, fire resistance requirements; structural systems; various classifications; comparative study; integration of structural systems with other building systems; synthesis, preliminary analysis and evaluation of alternative structural schemes; case studies. (Also listed as Engineering 82.430 ★.)

Day division, Second term: Lectures three hours a week.
S.G. Haider

Architecture 77.425 (6 units)

Workshop: Industrialized System Building

The design of building system components, control methods, or philosophies to meet prescribed ranges of conditions.

Prerequisite: Architecture 77.320, or permission of the instructor.

Day division, Second term: Six hours a week.

Architecture 77.426 (6 units)

Workshop: Structural Synthesis

Creative synthesis of structural schemes within the total context of building design. Methods of analysis applied to particular problems. Form and function. Case studies. A significant structural design effort is required.

Day division, Second term: Six hours a week.

Architecture 77.428 (6 units)

Workshop: Structure and Form

Study of structural nature of non-conventional space enclosure systems like cable structures, membranes, shells, submerged structures, excavated structural forms, lunar structures.

Second term: Six hours a week.

S.G. Haider, J. Strutt

Architecture 77.432 (4 units)

Manufacturing Processes and Materials Engineering I

This course is cross-listed as Engineering 88.371 ★ and the content has been adapted to cover topics of interest to architects and engineers in the building industry.

Prerequisite: Architecture 77.330, or permission of the instructor.

Day division, First term: Lectures two hours a week, laboratory three hours, alternate weeks.

J. Goldak

Architecture 77.440 (3 units)

Design for Construction

A series of lectures and visits to building sites and subcontractors' plants to study the building process as it is affected by the architect's decisions. Contractors and subcontractors will participate. Analysis of decisions taken and methods used. Elemental cost analysis. Estimating costs from sketches.

Prerequisite: Architecture 77.330, or permission of instructor.

Day division, First term: Lectures, visits, seminars, three hours a week.

D. Wren

Architecture 77.488

Independent Study

See note c, p. 291.

Architecture 77.489

Minor Stream Thesis

See note d, p. 292.

Architecture 77.490

Minor Stream Paper

See note d, p. 292.

Division C

Division C comprises that part of the curriculum in Architecture concerned with the theoretical operational and substantive aspects of: professional practice; the form, structure, function, qualities and experiences of cities; and the processes of intervening in and directing urban development.

General Planning

Required course:

78.200 The City

Concentration electives:

78.340 City Organization and Planning Processes

Elective workshops:

78.345 Urban Design

78.349 City Organization and Planning Processes

Policy Planning and General Development

Concentration electives:

78.330 Community Development

78.360 Futures (Long Range) Planning

Elective workshops:

78.339 Community Development

78.370 Futures (Long Range) Planning

Management and Development

Concentration elective:

78.310 Land Development

Elective workshops:

78.301 Land Use Analysis

78.319 Land Development

Professional Practice

Concentration elective:

78.320 Introduction to Professional Practice

Elective workshop:

78.329 Professional Practice

■ **Required Courses**

Architecture 78.200 (2 units)

The City

An introduction to urban components, organizations, forms activity systems, experiences, images, and ways of understanding, recording, intervening in, and modifying the city. Topics include streets for people and cars,

plazas, parks and gardens, benches, signs and symbols, the textures of the city, boundaries and territoriality, nature in the urban environment, automobiles and freeways, sacred and secular cities, city and region, the city as built environment, suburbanization, the senses of place and time in the city.

Day division, Second term: Lectures two hours a week.

C.T. Aasen, R.E. Osler

■ **Concentration Electives and Elective Workshops**

Architecture 78.301 (6 units)

Workshop: Land Use Analysis

An introduction for students of Architecture and other disciplines to the broad concepts of environmental design, based on the necessity of an ecological approach to land use planning. It includes the history of North American concern with the land as a resource; theories and methods of land use analysis that result from nature of recent concern; and selected illustrative case studies. Students will work in teams with the help of the instructor, other university faculty members and those engaged in government activity in this field, to analyze and plan for selected areas.

Day division, First term: Six hours a week.

J. Mather

Architecture 78.310 (3 units)

Land Development

An overview of the land development and redevelopment process and an exploration of more effective ways of participation in it. An actor-oriented approach is taken. Different participants explain their role in the process and the nature and source of information required for decision making. Case studies are used to illustrate the market studies, development feasibility, impact of development controls, emerging citizen roles, cost/benefit analysis of development alternatives, urban gaming, development trends.

Day division, First term: Three hours a week.

W. Dawson, W. Freeman

Architecture 78.319 (6 units)

Workshop: Land Development

Introduction to the land development and redevelopment processes through application of knowledge acquired in previous studies and taken from the field. Focus on team projects supported by guest lectures, field investigations and project discussions.

Prerequisite: Architecture 78.310, or permission of the instructor.

Day division, First term: Six hours a week.

W. Dawson, W. Freeman

Architecture 78.320 (3 units)

Introduction to Professional Practice

An overview of the practice of architecture. Topics include professional organization and conduct, the architect's services, business law, office organization and management, contract documents, building codes,

contract management, cost control, accounting, site supervision. Lectures, guest speakers and case studies from professional practices and construction representatives in the area.

Day division, First term: Three hours a week.

J. Flanders

Architecture 78.329 (6 units)

Workshop: Professional Practice

An introduction to the application of various components of a professional architectural practice. Client requirements, contract and project management, personnel and office management, specifications, cost control, etc., are developed as parts of the building process.

Day division, Second term: Six hours a week.

Architecture 78.330 (3 units)

Community Development

A study of leading issues and problems in Canada's urban communities: neighbourhood preservation and planning, heritage conservation, social animation, community organization, citizen power, advocacy planning, community development corporations, co-operative housing, social planning. Overviews and case studies, lectures and guest lectures.

Day division, First term: Three hours a week.

B. Padolsky

Architecture 78.339 (6 units)

Workshop: Community Development

Field investigations, team projects and seminars in community development issues and problems in Canada.

Prerequisite: Architecture 78.330, or permission of the instructor.

Day division, Second term: Six hours a week.

B. Padolsky

Architecture 78.340 (3 units)

City Organization and Planning Processes

An overview of the structure, form and functioning of Canadian and other countries' cities; methods for intervening in and directing city processes and solving city problems: an introduction to urban problems, potentials and solutions. Topics include: physical infrastructure and forms of cities; urban facilities and networks; ecosystems, demography and social organization, and government and politics; quality of life, goals, and perceptions of urbanites; urban management, development, regulation and codes, design, planning, and policy-making. Lectures, guest lectures, reading assignments.

Day division, First term: Three hours a week.

C.T. Aasen, G.F. Sutton

Architecture 78.345 (6 units)

Workshop: Urban Design

A workshop program investigating aspects of design problems that relate to the wider context of regional and urban planning. This will involve examination of tech-

niques used for the formulation and implementation of design strategies that shape complex urban environments.

Day division, First or Second term: Six hours a week. Co-ordinated and offered jointly with Architecture 78.349. See also Architecture 76.204 and 76.209.

R.E. Osler

Architecture 78.349 (6 units)

Workshop: City Organization and Planning Processes

Interdisciplinary investigation, analysis and synthesis of the institutions, processes, environments and demography of Canadian cities. Seminars, guest lectures, field investigations and individual and team projects. Co-ordinated and offered jointly with Architecture 78.345.

Prerequisite: Architecture 78.340, or permission of the instructor.

Day division, First term: Six hours a week.

C.T. Aasen

Architecture 78.360 (3 units)

Futures (Long Range) Planning

An overview of the approaches, methods and application of futures planning to the development of policy, program, management and design options in the urban field. The emphasis is on research, analysis, and synthesis from a long range, multidisciplinary perspective. Lectures, guest lectures, readings and assignments.

Day division, Second term: Three hours a week.

C.T. Aasen

Architecture 78.370 (6 units)

Workshop: Futures (Long Range) Planning

Applications of futures planning approaches and methods to specific urban situations and problems. Seminars, guest lectures in support of individual and multidisciplinary team projects.

Prerequisite: Architecture 78.360, or permission of the instructor.

Day division, Second term: Six hours a week.

C.T. Aasen

Architecture 78.488

Independent Study

See note **c**, p. 291.

Architecture 78.489

Minor Stream Thesis

See note **d**, p. 292.

Architecture 78.490

Minor Stream Paper

See note **d**, p. 292.

Division D

Division D comprises the part of the curriculum in architecture that is concerned with a wide range of problem-solving methods and techniques including analysis,

synthesis, metaphor, modelling and other simulations, inter-personal relations, communications, and education.

Computations

Required courses:

79.100 Mathematics in Architecture

79.110 Introduction to Architectural Use of Computers

79.200 Mathematics in Architecture II

Concentration electives:

79.312 Problems in Computing

79.320 The Geometry of Form

Elective workshop:

79.326 Computer Applications

Design Methodology

Required course:

79.230 Design Methods in Architecture

Concentration electives:

79.300 Problem-Solving Models and Methods I

79.301 Problem-Solving Models and Methods II

Elective workshops:

79.325 Experimental Design

79.327 Computer-Aided Design

79.328 Computer Graphics

79.329 Problem-Solving

79.330 Co-operative Problem-Solving

Design Education

Concentration elective:

79.351 Design Education

Elective workshops:

79.340 Visual Design

79.352 Design Education

Communications

Required course:

79.130 Communications I

Elective workshop:

79.341 Photography

■ *Required Courses*

Architecture 79.100 (6 units)

Mathematics in Architecture I

Listed as Mathematics 69.130

Architecture 79.110 (4 units)

Introduction to Architectural Use of Computers

A first course in the use of the computer as a tool in the problem-solving process. In the First term, particular emphasis is laid on the algorithmic problem-solving process and on the detailed analysis of problems so as to render solutions amenable to computerization. In the Second term, computer programming of algorithms is studied, using the programming languages: BASIC and FORTRAN.

Day division: Lectures one hour a week, problems one hour.

J.-M. Comeau

Architecture 79.130 (6 units)

Communications

Listed as Journalism 28.100.

Architecture 79.200 (3 units)

Mathematics in Architecture II

An introduction to the mathematics of stochastic processes. Review of the basic concepts of probability and statistics, then overview of queuing theory, game theory and information theory with an emphasis on applications in Architecture.

Day division, Second term: Lectures two hours a week, problem laboratory one hour a week.

J.-M. Comeau

Architecture 79.230 (1 unit)

Design Methods in Architecture

To develop a context within which design methods may be properly treated and established to play a creative role in architecture. Study of needs, resources, information, operational sequences in design, problem solving, various approaches to analysis, synthesis, evaluation and decision. To be taken in conjunction with Architecture 80.200.

Day division, First term: Lectures one hours a week.

D. Shadbolt

■ *Concentration Electives and Elective Workshops*

Architecture 79.300 (4 units)

Problem Solving Models and Methods I

Review and discussion of extant problem-solving methods. Discussions about needs, resources, information, values as problem environments. Operational sequence in design problem solving. Various approaches to analysis, synthesis, evaluation and decision. The nature of models; various modelling approaches and their applications. Specific areas discussed will be networks, mathematical programming, optimization techniques and their various manifestations applicable to planning and design problems.

Day division, First term: Lectures three hours a week, laboratory two hours.

Architecture 79.301 (4 units)

Problem-Solving Models and Methods II

A continuation of Architecture 79.300. The nature and classification of problems and corresponding arrays of mathematical models and heuristics. Topics include game theory, graph theory, networks, probabilistic models in forecasting, evaluation and decision-making. Case studies and student project.

Prerequisite: Architecture 79.300, or permission of the instructors.

Day division, Second term: Lectures three hours a week, laboratory two hours.

Architecture 79.312 (3 units)

Problems in Computing

Introduction to various types of non-numeric data, its representation within primary and secondary storage, and the manipulation of various representations. Comparative evaluation of languages for non-numeric problems. Student projects.

Prerequisite: Permission of the instructor.

Day division, Second term: Lectures two hours a week, laboratory two hours.

Architecture 79.320 (3 units)

The Geometry of Form

The development of a basic vocabulary of form through identification of the rules for combining and relating the minimal identifiable elements of geometric form. Investigation of the methodologies for changing those identities in order to generate entirely new forms. Study of planar and space geometries with special emphasis on polygons and polyhedra, their singular, close and loose packing properties. Discussions on form; geometric operations, like vertex motion, folding, reciprocation and truncation.

Text: Williams, *Natural Structure*.

Day division, First term: Lectures three hours a week.
J. Strutt

Architecture 79.325 (6 units)

Workshop: Experimental Design

Introduction to experimental design emphasizing simulation; graphical, analog and mathematical modelling. Topics include computer simulation, physical and theoretical model testing, complete and incomplete design. Student projects.

Prerequisite: Architecture 79.301, or permission of the instructor.

Architecture 79.326 (6 units)

Workshop: Computer Applications

Applications of existing computer programs and programming techniques to various architectural problems. Software, state-of-the-art and applications will be extensively covered. Project work may be user-oriented on the basis of existing software or development of original work. Student projects.

Architecture 79.327 (6 units)

Workshop: Computer-Aided Design

Adaptation of design techniques to computer application. Bifocal approach will offer the opportunity for application of existing software to interactive graphics systems and development of heuristic design models based on original work. Student projects.

Prerequisite: Permission of the instructor.

Day division, First term: Six hours a week.

Architecture 79.328 (6 units)

Workshop: Computer Graphics

Use of interactive graphics hardware systems and study of file structures for graphics processing. Developmental work leading toward computer-generated art as well as implementation of production-oriented user display software will be encouraged. Student projects.

Prerequisite: Permission of the instructor.

Day division, Second term: Six hours a week.

Architecture 79.329 (6 units)

Workshop: Problem Solving

Developmental work in applications of problem-solving techniques to design problems. Areas covered will include problem definition, design alternatives, evaluation criteria, emphasizing strategies models and methods, term project.

Prerequisite: Architecture 79.300.

Day division, Second term: Six hours a week.

Architecture 79.330 (6 units)

Workshop: Co-operative Problem-Solving

Group training and problem-solving sessions will focus on participation and roles within the meeting; listening; itemized response; uses of metaphor; force-fit; closure and follow-through techniques. Student projects. Limited enrolment.

Day division, First or Second terms: Six hours a week.

F. Carter, D. Westwood

Architecture 79.340 (6 units)

Workshop: Visual Design

A workshop program to increase the student's capacity to visualize and communicate in several graphic media, and also to increase sensitivity to form, structure, space, texture and colour.

Day division, First or Second term: Six hours a week.

H. Sharon or P. Sharp

Architecture 79.341 (6 units)

Workshop: Photography

Experimentation with photography as a means of communication and study of the social and built aspects of the environment.

Prerequisite: Permission of the instructor.

Day division, First or Second term: Six hours a week.

J. Flanders

Architecture 79.351 (4 units)

Design Education

Review of extant design education methods and related learning theories. Development of various approaches to the education of designers: awareness, skills and knowledge; analytic, synthetic and evaluative capabilities.

Day division, First term: Lectures three hours a week, laboratory two hours.

Architecture 79.352 (6 units)

Workshop: Design Education

A continuation of Architecture 79.351 with emphasis on the applications of education theories to the design professions. Experimental studies in design education methods. Student projects.

Prerequisite: Architecture 79.351.

Day division, Second term: Six hours a week.

Architecture 79.488

Independent Study

See note c, 291.

Architecture 79.489

Minor Stream Thesis

See note d, p. 292.

Architecture 79.490

Minor Stream Paper

See note d, p. 292.

Studio Division

The studio program division is responsible for the administration and content of the comprehensive design program in the studio and for the integration of the other divisional interests within this program. Studio courses during the First and Second years introduce a wide variety of problem types aimed at giving basic experience in the various parts of the design process. During the senior years this experience is extended and refined in subject-oriented elective studios.

■ *Required Courses*

Architecture 80.100 (20 units)

Studio I

During the First term studio problems will deal with design at an introductory level and range in scale from personal space to the structure of communities. Second term studio problems will deal with design at an introductory level with an emphasis on human and environmental factors in an architectural context. This course will contain lectures, seminars and visits and will include an introduction to basic skills, construction and environmental factors.

Day division: Lectures two hours a week, studio tutorials one hour a week.

Architecture 80.200 (22 units)

Studio II

During the First term studio problems will deal with design, emphasizing construction, structural and environmental factors in an architectural context. Second term studio problems will deal with the integration of the subject areas covered in the First term and with those of Architecture 80.100. This course will contain lectures and seminars, on basic skills, construction and building codes.

Day division: Lectures two hours a week, studio tutorials one hour a week.

■ *Elective Studios*

Studio programs are open to Third, Fourth and Fifth year students in Architecture. Within the subject orientation of each studio, design problems will be selected for individuals, teams or year groups, taking into consideration the stage of development and previous studio experience of the students. Problems will be chosen which are appropriate in scale, complexity, socio-behavioural characteristic, typology and technical implication from the wide range of environments required by modern industrial society. Lectures, seminars, and research projects will provide the background context by reviewing relevant historical, legislative, organization, economic, financial, political, technical and professional topics. (See note a, p. 291).

Architecture 80.300 (14 units)

Studio: Dwelling Environments

Day division, First and Second terms: Lectures two hours a week, studio tutorial one hour a week.

Architecture 80.301 (14 units)

Studio: Education Environments

Day division, First and Second terms: Lectures two hours a week, studio tutorial one hour a week.

Architecture 80.302 (14 units)

Studio: Health Care and Therapeutic Environments

Day division, First and Second terms: Lectures two hours a week, studio tutorial one hour a week.

Architecture 80.400 (14 units)

Studio: Work Environments

Day division, First and Second terms: Lectures and seminars two hours a week, studio tutorial one hour a week.

Architecture 80.401 (14 units)

Studio: Recreation Environments

Day division, First and Second terms: Lectures and seminars two hours a week, studio tutorial one hour a week.

Architecture 80.451 (14 units)

Studio: Special Purpose

This studio will either be concerned with topics not covered in other subject-oriented studios, and/or be given by visiting faculty who are specialists in a particular design area.

Day division, First and Second terms: Lectures and seminars two hours a week, studio tutorial one hour a week.

Architecture 80.453 (18 units)

Terminal Studio

A studio program open to students of the Fifth year in Architecture. Design problems will be selected for individuals or teams, taking into consideration the previous studio experience of the students concerned.

Day division, Second term: Lectures and seminars two hours a week, studio tutorials one hour a week.

Architecture 80.491 (30 units)

Terminal Project

See note d, p. 292.

School of Industrial Design

Officers of the School

Director
W. Gilles

Associate Professor
P.R. Sharp

Other Officers of Instruction to be appointed before September 1975

General Information

Industrial Design* is a creative activity, the aim of which is to determine the formal qualities of objects produced by industry. These formal qualities include the external features but are principally those structural and functional relationships which convert a system to a coherent unit, both from the point of view of the producer and of the user.

Industrial Design tends to embrace all aspects of human environment which are conditioned by industrial production.

In the future, the traditional activity of design for growth may continue to be essential. It will be necessary, however, to develop a design activity which contributes to the regulating of growth processes, the conservation of resources and the protection of the environment.

* As defined by the International Council of Societies of Industrial Design.

Bachelor of Industrial Design Degree Program

In September 1973, Carleton University initiated the First year of a new four-year program leading to the Bachelor of Industrial Design degree.

The Bachelor of Industrial Design degree will be awarded on successful completion of the four-year program of studies. The program is structured to meet the requirements of the developing profession of Industrial Design. This implies an education with a solid general background, enabling the designer to communicate with experts in other disciplines. It also implies development of expertise in designing for one or more specific sectors of the wide field of application of industrial Design. The program of studies, which was initiated as a joint venture of the Faculty of Engineering and the School of Architecture, therefore provides for an Engineering-oriented as well as an Architecture-oriented stream, together with all possibilities for the integration of both.

The Third year of the Bachelor of Industrial Design program will be offered in the 1975-76 sessions as described in this Calendar. Fourth year courses will be offered in 1976-77.

Admission Requirements

First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus, Chemistry and Physics; or the successful completion of the Qualifying University year in Science or Engineering.

A student unable to meet the foregoing specific course requirements but otherwise admissible to Carleton University may be admitted, but will be required to satisfy the outstanding requirements at the Qualifying University year level.

Advanced Standing and Transfer of Credits

Applications for admission with advanced standing to the Second or subsequent years of the program leading to the Bachelor of Industrial Design degree will be evaluated on an individual basis. Advanced standing for academic subjects completed at another university or college will be evaluated for equivalence to the program requirements of the School of Industrial Design. Transfer of credit for projects in an Industrial Design, Engineering or Architecture program completed at another university or college, for those which have been completed at Carleton may be considered, provided the grade is satisfactory and the student shows evidence of aptitude for design studio work by the production of a portfolio of original drawings or photographs, etc. and as a result of an interview with a designated member of the faculty of the School.

Mature Matriculation

Persons who lack the normal entrance requirements as published in this Calendar but who are twenty-three years of age or over, prior to the session in which they wish to enrol, may receive consideration for admission to a degree program.

Selective Admission

It should be noted that the number of student spaces in the School is limited. Because of this we expect that it may not be possible to grant admission to all applicants who meet the foregoing requirements. Admission will therefore be on a selective basis with preference given to those candidates who show the highest promise of success in the course.

Course Requirements

First and Second Years

See charts First and Second year Engineering pp. 257 and 258. First and Second year Architecture, p. 288.

First and Second years for students enrolled in the School of Industrial Design are, for the most part, identical to either First and Second years of the Faculty of Engineering or of the School of Architecture, depending on the orientation-stream the student wishes to follow.

Students in Industrial Design must take the full course load with other students in Engineering or in Architecture. Some courses in the First and Second years will be given by staff from the School of Industrial Design.

Course work in the First and Second years in Engineering and Architecture will be adjusted, where applicable, to reflect the new mix of students, particularly in design and studio projects.

For Industrial Design students in the Second year of Engineering, as well as for those in Second year of Architecture, the courses Industrial Design 85.200 (Theories of Industrial Design I) and 85.201 (Theories of Industrial Design II) must be taken. These courses fulfill the requirements for Science or Engineering electives for students in the Engineering stream.

It is also required that courses Economics 43.100 (Principles of Economics) or 43.101 (Contemporary Economic Issues) and/or Psychology 49.100 (Introductory Psychology) are taken in lieu of electives in Second year as these courses are prerequisites for advanced courses in Economics and Psychology in Third and/or Fourth years.

Third Year—available in the 1975-1976 Session

Term	Lectures and Tutorial		Laboratory and Studio Projects		Course Weight
	I	II	I	II	
Conversion Elective (note a)	3 (A)	3 (A)	6 (E)	6 (E)	7
43.201 Introduction to Micro-Economic Theory and Analysis (note b)	2	—	—	—	3.5
43.408 Marketing (note b)	—	2	—	—	3.5
49.382 Special Topics in Psychology (Anthropometrics and Ergonomics) (note c)	3	—	—	—	3.5
49.321 Perception (note c)	—	3	—	—	3.5
85.310 Mass-Production Technology for Industrial Design	2	2	4	4	8
85.320 Form and Colour Fundamentals	2	2	4	4	8
85.330 Industrial Design Project I	2	—	8	—	7
85.331 Industrial Design Project II	—	2	3	11	10
Elective	3	3	—	—	7
Hours per week	(A) 17 (E) 14	17 14	19 25	19 25	61

Note a

Students who followed the First and Second year of the B.I.D. Program in the Architecture Stream (A) should take the following courses in Engineering: 88.270★ (Elements of Materials Engineering) and 88.272★ (Engineering Materials).

Students who followed the First and Second year of the B.I.D. Program in the Engineering Stream (E) should take one of the following courses in Architecture: 77.325 (Workshop: Building Sub Systems Design); 77.326 (Workshop: Space Enclosure Systems) or 77.340 (Workshop: Visual Design).

Note b

Students who are not qualified to take this course must take the prerequisite course (Economics 43.100 or 43.101) in lieu. The courses Economics 43.201★ and 43.408★ must be taken as electives in Fourth Year, in this case.

Note c

Students who are not qualified to take this course must take the prerequisite course (Psychology 49.100) in lieu. The courses Psychology 49.382★ and 49.321★ must be taken as electives in Fourth year, in this case.

Fourth Year—available in the 1976-1977 Session

Term	Lectures and Tutorial		Laboratory and Studio Projects		Course Weight
	I	II	I	II	
85.400 Professional Practice in Industrial Design	—	3	—	—	3.5
85.401 Industrial Design Seminar (note a)	3	—	—	—	3.5
85.430 Major Industrial Design Project (note b)	2	2	15	15	20
85.431 Minor Industrial Design Project I (note b)	—	—	6	6	7
85.432 Minor Industrial Design Project II (note b)	—	—	6	6	7
85.450 Colloquium Cultural Subjects	3	3	—	—	7
Elective (Industrial Design) (note c)	3	3	—	—	7
Elective (note c)	3	3	—	—	7
Hours per week	14	14	27	27	62

Note a

The Industrial Design Seminar will be concentrated in one week, during the First term or between the First and Second term; no other courses can be taken during that week.

Note b

Lecture and tutorial hours for the Major Industrial Design Project will not be scheduled in the University timetable. They will be used in the briefing, instruction and information period of the Projects and be scheduled in accordance with the workplan, which each student is required to submit to the Industrial Design Projects Committee of the School, before the end of the Second term of Third year.

Note c

Electives must be chosen in consultation with the Indus-

trial Design Projects Committee on the following principles:

(i) the electives cannot be used to make up for any deficiencies from previous years except for the course Economics 43.201 and 43.408 and Psychology 49.382 and 49.321 (compare notes **b** and **c** of Third year's course pattern);

(ii) the electives chosen should serve to deepen the student's understanding of fields related to Industrial Design or disciplines which are relevant for industrial designers;

(iii) the electives chosen should preferably be advanced courses, for which the student has taken prerequisites in previous years;

(iv) the electives chosen should preferably be related to the Industrial Design Projects and provide basic and/or actual information for these Projects.

Third and Fourth Years

See charts Third and Fourth year Industrial Design pp. 310-311.

Industrial Practice Internship

In order to provide the student with a realistic view on the possibilities and limitations of industry and to establish and maintain good contacts and communication between the School, the students and industry, the student in Industrial Design has to spend a period of time as an intern in industry.

These periods of Industrial Practice Internship are to be taken between the First and Fourth years of study and to be chosen in an industry that will satisfy the faculty involved.

The periods must total at least 80 working days and the student must submit proof of this experience together with a written testimony of satisfactory results on behalf of the management of the industrial establishment involved.

Although students will be encouraged to find a suitable internship on their own initiative, the School of Industrial Design offers a placement service for this purpose. Students are advised to apply for this service at least three months in advance. In cases where a suitable industrial internship is not possible, alternate arrangements will be made.

If the Industrial Practice Internship is not completed in time or if it is not proved successful, the student will not be awarded the Bachelor of Industrial Design degree until the missing internship is completed and proof of satisfactory results is given.

During the Industrial Practice Internship, a study of the relationship between Industrial Design and the technology or production process at hand will be undertaken. A report is to be submitted to the School, to be filed in the technical data facilities of the School and made accessible to other students.

Industrial Design Projects

The Industrial Design Projects in the Third and Fourth years will represent either real or simulated situations to be developed to the stage of drawings, models, full-scale mock-ups or simulated finished products, as appropriate.

The design experience in Industrial Design Projects synthesizes and integrates all the other course work and draws on the resources from those courses, including the disciplinary expertise of the staff. It should also attempt to explore and exploit knowledge available on campus and within institutions outside.

Industrial Design Projects, even when they are research-oriented, will only be acknowledged when they are aiming at predetermined goals, which should be of a concrete nature, preferably objects to be made by industry. The subject or theme of the Project will be determined by agreement between the student and the Faculty involved.

The usual pattern of activities in the execution of an industrial design project is, in its simplest form, composed of three subsequent phases:

- (a) an analytical informative phase;
- (b) a creative or formative phase;
- (c) a descriptive or communicative phase.

Progress within this pattern of activities is made by feedback and feed-forward with intermediate evaluations. A project will not be considered complete, if any of the three major phases has not been passed through, documented and evaluated.

The student will be required to keep a specified record of working hours spent on the Project, which record will have to be available for inspection. The record will be one of the documents to be submitted at examination.

The School of Industrial Design may conditionally approve an intended collaboration of students in the execution of Industrial Design Projects, provided that proper means of evaluation and examination are built in the project, to ensure the identification of each student's contribution.

Industrial Design Projects, will be examined by the appropriate body after each of the phases and on the planned and agreed deadlines. Students who do not meet the deadlines of submission of project work will be considered to have withdrawn from examination.

The execution of Industrial Design Projects will require professional equipment for sketching, drawing, etc. which will not be provided by the School. A list of recommended equipment is available at the School's administration. The initial costs for the minimum equipment necessary will be approximately \$200.

The execution of Industrial Design Projects will require materials for sketching, drawing, reproduction, model making etc. Moreover, travel costs may be involved. The level of total expenditure will vary considerably with the nature of the theme or subject of the Project. The policy of the School is to see that such costs are only partly borne by the student and that co-operation with industry and institutions outside the University will provide further funds. The student's contribution can be estimated generally in the order of \$100 per year.

Documents, sketches, drawings, models etc., resulting from Industrial Design Projects must be registered at the

administration of the School as the authorized work of the student while studying at the School of Industrial Design of Carleton University.

Resulting documents, sketches, drawings, models, etc. from Industrial Design Projects must be retained by the student for a minimum period of two years after production, in which period the student must have these results available in good condition to the School of Industrial Design for exhibition, display or publication purposes. During this time, the student will be required to advise the Director of the School, well in advance, about any transaction, exhibitions, display or publication, which will involve these results.

Students are not allowed to use the result of Industrial Design Projects for commercial purposes, without written permission of the Director of the School of Industrial Design.

Fourth Year Industrial Design Projects

All regulations and arrangements as described under "Industrial Design Projects" apply to the Fourth year Projects. Over and above these regulations, these Industrial Design Projects are subject to the following:

Fourth year Industrial Design Projects will be conducted, supervised, administered and examined by the Industrial Design Projects Committee, reporting to the Faculty Council of the School.

The subjects or themes of Industrial Design Projects will be determined by agreement between the student and the Industrial Design Projects Committee, which agreement should be reached before the end of Second term in the Third year.

Students registering in Fourth year, who have failed to reach an agreement with the Industrial Design Projects Committee before the end of the Third year, will be given assignments for Fourth year Projects by the Committee after registration. Such assignments are binding.

In order to reflect the actual situation of the professional industrial designer, the student will be required to undertake more than one project to be executed simultaneously in Fourth year. The student will be required to plan the work on the Fourth year Industrial Design Projects well in advance, in consultation with the Industrial Design Projects Committee.

The proposal for a work plan, has to be submitted to the Industrial Design Projects Committee for approval before the end of the Second term of Third year.

The specified record of working hours, spent on Fourth year Industrial Design Projects will have to be available for inspection by the Committee at any time and will be

amongst the documents to be submitted at the final examination.

General Information

Course Pattern and Counselling

The program of study in Industrial Design is necessarily structured to meet the requirements in education and training for a professional career in industrial design. The First and Second years' course patterns follow those of the School of Architecture and the Faculty of Engineering, with adaptations through the elective courses offered. The Third and Fourth years of the School of Industrial Design are structured to build on the material of the previous two years with minor conversions to suit a program with an identity of its own. The emphasis in Fourth year is on the Industrial Design Projects, the other courses preferably to be considered as supporting sources of knowledge and understanding.

When a student first registers in the School of Industrial Design, he is assigned a faculty member of the School, who will act as his adviser. The adviser usually counsels the student for the duration of his undergraduate program. This counselling includes program requirements, selection of electives and course and program approvals.

Progress through the program in First and Second year is by means of the systems of the School of Architecture and the Faculty of Engineering as appropriate. (pp. 257, 258 and 288). Progress through the program in Third and Fourth years is by means of the modified credit system as used in the Faculty of Engineering.

For purposes of scheduling, each student is considered as being in a particular year of the program. In order to move from Third to Fourth year of the program, a student must not be deficient in the Industrial design Project courses and in no more than one of the other courses. This requirement does not relate to a student's academic status, but only to his nominal year designation. However, a student who is taking courses in Fourth year while designated in Third year, has the responsibility for satisfactorily resolving any prerequisite deficiencies and difficulties in his course program.

Course Units

In situations where the number of lecture and laboratory hours of electives deviates substantially from those hours assumed in the tables of Third and Fourth years, the student may be given additional credit towards his elective requirements. This credit will be based on the unit system with one unit for each additional term lecture hour and one unit for every two additional term laboratory hours.

Course Level

The year level of a course can be read from the course number; for example the course Industrial Design 85.331 is at Third year level and 85.450 is at Fourth year level. This indicates the general academic background required and specific prerequisites are also given where appropriate. Students may take courses at a year level higher than their current registration; however, they are advised to consult the course instructor if they have doubts regarding their background preparation. In some cases, the instructor may also be able to waive specific prerequisites.

Electives

The School of Industrial Design offers only a few elective courses under its own jurisdiction. It is strongly recommended, however, that students in industrial design choose from the wide variety of courses in humanities, social sciences, engineering or multi-disciplinary courses offered in the University. Industrial Design Projects most often represent complex situations which require background information that often will be better understood when supported by appropriate elective courses in other disciplines. Certain advanced courses in Psychology and Economics can hardly be eliminated from a program in Industrial Design which aims at a sound professional body of knowledge.

Qualifying University Year Courses

Qualifying University year courses cannot be used to satisfy any of the elective requirements in any year of the regular course pattern.

Timetables

All undergraduate courses of the School of Industrial Design are normally offered in the Day division only and are scheduled in the timetable of the University.

Grading System

Standing in courses will be determined by the Faculty and will be shown by alphabetical grades. The grades used with their corresponding grade points are as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

Passed Supplemental Examination: 2

Standing to represent special circumstances are as follows:

Aeg

Aegrotat standing is a pass standing granted despite absence from the final examinations. It may be granted by the Committee on Admissions and Studies of the School of Industrial Design only in response to a student's written request. Aegrotat standing will be granted only in exceptional circumstances and if the term work has been of high quality.

Pass

Pass standing in a supplemental examination: equivalent to 2 grade points.

F

Failure: no academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of unsatisfactory term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing: no academic credit.

Abs

Absent from formally scheduled final examinations where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Committee on Admissions and Studies of the School of Industrial Design for deferred examination privileges. Such applications must:

1. be made in writing to the Engineering Faculty Registrar's Office not later than one week after the date of the examination; and
2. be fully supported in the case of illness by a medical certificate or by appropriate documents in other cases.

Academic Standing, Promotion and Probation

The academic standing of each full-time student will be reviewed just prior to fall registration. At that time, the student's previous record, including courses from the preceding summer session and supplemental examination results, will be considered.

Academic Standing, Promotion and Probation in First and Second Years

During the First and Second years, academic standing, promotion and probation of a student registered in the B.I.D. program, is under the jurisdiction of the School of Architecture or of the Faculty of Engineering, whichever is applicable (see p. 269 for Engineering and pp. 294-295 for Architecture).

Promotion to the Third year of the B.I.D. program requires the same academic standing as required for promotion to Third year Architecture or Third year Engineering, for students who were enrolled in the Architecture or Engineering stream respectively.

Academic Standing in Third and Fourth Years

Academic standing in Third year is based on the student's record in this year exclusively and academic standing in Fourth year is based on both the records of Third and Fourth years. To achieve satisfactory academic standing, the student must attain standing (a grade point of 1 or better) in at least four full courses, or equivalent, of those in which the student has been registered during the past year. Moreover, the student must have achieved a grade point of 4.0 or better in each of the Industrial Design Project courses, together with a weighted grade point average over all courses taken after Second year, excluding those which have been repeated, of 3.5 or better.

Probation

A student, who fails to meet the foregoing conditions for satisfactory academic standing, will be placed on academic probation and is required to repeat the Industrial Design Project courses in which grade points less than 4.0 were obtained. A student on probation, who meets the foregoing conditions will regain satisfactory academic standing.

A student on probation, who fails to meet the conditions will lose the undergraduate status and will be ineligible for future registration in the B.I.D. program.

Students with Advanced Standing

Students admitted with advanced standing must obtain an average appropriate to their level of admission but only those courses taken at Carleton University will be included in the evaluation.

Graduation

In order to fulfill the minimum graduation requirements for the degree of Bachelor of Industrial Design, a candidate must have passed all the course requirements of the

First to Fourth years, inclusive, with an over-all weighted grade point average of at least 3.5. In addition, the candidate must have achieved a grade point of 4.0 or better in each of the Industrial Design Project courses and be recommended by the School of Industrial Design.

Degrees with Distinction

Upon recommendation of the School of Industrial Design, the notation "with High Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Industrial Design. To receive this recommendation, the candidate is expected to obtain a weighted grade point average of at least 9.0 in the course requirements of the final year and, in addition, a weighted grade point average of at least 7.8 in the course requirements of the First to Fourth years, inclusive.

Upon recommendation of the School of Industrial Design, the notation "with Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Industrial Design. To receive this recommendation the candidate is expected to obtain a weighted grade point average of at least 7.8 in the course requirements of the final year and in addition, a weighted grade point average of at least 6.6 in the course requirements of the First to Fourth years, inclusive.

Courses Offered

Industrial Design 85.200 ★

Theories of Industrial Design I

An overview of the theoretical background of the phenomenon Industrial Design, consisting of such topics as: the definitions and dimensions of design and industrial design, its nature and its historical evolution; the notion of quality; quality aspects in man-made objects; formal qualities as determinants for categories of design; design methods; design management in industry; professional practice of industrial design and industrial design promotion, nationally and internationally. Practising industrial designers will be invited to present case studies of their activities. (Also offered as Architecture 76.206 ★).

Texts: Pye, *The Nature of Design*; Archer, *A Systematic Method for Designers*.

Day division, First term: Lectures and discussions three hours a week.

W. Gilles

Industrial Design 85.201 ★

Theories of Industrial Design II

The various problems involved in industrial design will be discussed in this course. Among others: the relationship with principle techniques and mass-production technology; problems of uniformity and variety, specialty

and versatility in production; problems of tolerances; the role of ergonomics and anthropometrics in design; industrial design and environment; speculations about future industrial design approaches with regard to pollution and conservation of resources; adaptation of value-analyses to the field of industrial design: (Also offered as Architecture 76.211★).

Prerequisite: Industrial Design 85.200★ (Architecture 76.206★).

Day division, Second term: Lectures and discussions three hours a week.

W. Gilles

Industrial Design 85.310

Mass-Production Technology

This course attempts to generalize the transformation techniques for all operational materials in modern industry. The course presents a survey of the various techniques applied to material in its liquified, plastified or solid state of aggregation, such as casting, injection molding, extruding, forging, vacuum forming, deepdrawing, stamping, folding, cutting, machining, sintering, joining, laminating and finishing operations. The techniques will be merited in terms of economics and accuracy. The role of templates and molds will be emphasized and properties and limitations of molds will be studied.

Prerequisite: Third year registration.

Day division: Lectures and tutorials two hours a week, laboratory four hours a week.

Industrial Design 85.312★

Graphics Technology and Design

Survey of techniques and processes, used in the printing and blockmaking industry and the relationship of these processes to graphic design. Typeface design and the development of type and families of typeface from historical sources. Typeface as exponents of cultural trends. Basics underlying typography and layout in graphic design. Minor graphic design projects will be executed in connection with the lectures.

Prerequisite: Third year registration.

Day division, First term: Lectures and tutorials three hours a week, laboratory three hours a week.

Industrial Design 85.313★

Package Engineering and Design

Survey of processes and materials used in the packaging industry. Principles of package engineering and design for the transportation and distribution of mass-produced products. Packaging design as integrated in marketing processes; product and brand identification; corporate identity through package design. Minor packaging design projects will be executed in connection with the lectures.

Prerequisite: Third year registration and Industrial Design 85.321★.

Not offered 1975-76.

Industrial Design 85.321★

Environmental Communication

It is recognized that the objects of our environment, besides their primary usage, are most often used as a medium to communicate man's personal or collective ideas. The design of objects and environments can, to a great extent, be seen in this context and this course is intended to explain the major mechanics of communication in general and of communication by means of objects in particular. Analyses of objects and environments with respect to communicative functions will be undertaken and experiments will be conducted.

Prerequisite: Third year registration.

Not offered 1975-76.

Industrial Design 85.320

Form and Colour Fundamentals

The objective of the course is to encourage the student to approach the phenomena of form and colour systematically. Known systems of form determination and colour identification will be evaluated. Properties of structural elements of form and their interactions in ranges, proportions, static and dynamic symmetries in two and three dimensional compositions will be studied. Form and colour in nature will be compared with form and colour in man-made environments. Further topics of the course will be the appearance of form and colour under various conditions and in various positions, the expression of form and colour, typology of objects, form organization and form description and colour specification.

Prerequisite: Third year registration.

Day division: Lectures and tutorials two hours a week, laboratory four hours a week.

Industrial Design 85.330★

Studio Project Industrial Design I

The first industrial design-project to be accomplished, is of a simple nature, based on a given briefing and program of requirements. The emphasis is on the creative and executive phases of the design process. The problem area of the design is chosen in relationship to the student's knowledge and expertise and the special subjects of theoretical study in that same period.

Prerequisite: Industrial Design 85.201★(Architecture 76.211)

Day division, eight weeks of First term: Lectures and tutorials two hours a week, laboratory eight hours a week.

Industrial Design 85.331

Studio Project Industrial Design II

The second industrial design project is of a more complex nature and has to be accomplished in small development teams are in co-operation with experts from other disciplines. This project will begin with an extensive period of orientation on the given problem area, from which the program of requirements is derived, which will present the criteria for the further creative and

executive work. The choice of design assignments will be made with the consent of the students involved and the subject is to be in accordance with the student's special capabilities and knowledge. It is considered to be important that the student is doing a complete job, including the accomplishment of all the sketchwork, the making of preliminary models, product drawings and modelling.

Prerequisite: Industrial Design 85.330 ★.

Day division, five weeks of First term, plus total Second term: Lectures and tutorials three hours a week, laboratory eleven hours a week.

Industrial Design 85.340

Industrial Practice Internship Field Reports

During the periods of internship in industry, the student is required to study technological phenomena in their relationship to Industrial Design. At the end of each period, a field report, describing such phenomena and relationships must be submitted to the School for evaluation and marking. A minimum of three field reports is required, together with authorized proof of a minimum of eighty working days of internship in industry. Copies of field reports will be filed in the School to be accessible to other students.

Industrial Design 85.400 ★

Professional Practice in Industrial Design

The course will present a survey of how industrial designers practise as independent consultants, as well as being employed in industry. The organizational aspects of independent offices of industrial design, their responsibilities versus their clients and their ways of operation will be compared with the role of industrial design and the organizational aspects of the profession within the framework of industrial management. Topics will be the form of contracts for industrial design consultancy, ways of determination of fees, legal implications of the profession including those of patents and copyrights. The course will also deal with the organization of the profession, on a national and an international basis. Representative industrial designers will be invited to give their views on professionalism and present case histories of their operations.

Text: Goslett, *The Professional Practice of Design*.

Prerequisite: Industrial Design 85.200 ★ (Architecture 76.206 ★).

Not offered 1975-76.

Industrial Design 85.401 ★

Industrial Design Seminar

Each year, a special topic will be chosen to be elaborated on and discussed in this seminar. These topics will deal with problems in the relationship of Industrial Design with other disciplines. Experts of other disciplines will be invited to participate in and contribute to the seminar. The student is required to submit and defend a thesis, based on his participation in the seminar, at the time of presentation of the Fourth year Indus-

trial Design Projects.

Prerequisite: Registration in Fourth year Industrial Design Projects.

Not offered 1975-76.

Industrial Design 85.420 ★

Form Organization

Form organization attempts to design, define and prescribe solids of monolithic nature by means of an abstract system which can be used for instructional purposes to make and verify materialized approximations of such solids. A three-dimensional locus is an example of such a system: other systems are based on controlled growth patterns, geometric generation, typological generation etc. The course intends to describe variations of such systems, which the students are required to apply in laboratory exercises.

Prerequisite: Engineering 88.100 or equivalent; Industrial Design 85.320.

Not offered 1975-76.

Industrial Design 85.430

Major Industrial Design Project

The major Fourth year industrial design project should represent a theme, from which one or more problem areas can be derived or narrowed down. The problem area chosen, should preferably be product- or assortment-oriented and be of sufficient complexity. The project should be representative of the identity and previous education (Architecture or Engineering) of the student. Preferably, the assignment should be given in co-operation with off-campus organizations, industry etc., to increase the realism of the approach, at the same time enabling the student to introduce himself to practice and placement. Depending on the nature of the assignment, the results of the design work in this major project may deviate from the usual accomplishments of the executive phase of the process but they should bear evidence of the student's involvement and thorough approach. See also: Industrial Design Projects, and Fourth year Industrial Design Projects (p. 313).

Prerequisite: Industrial Design 85.331 or special approval of the Industrial Design Projects Committee.

Not offered 1975-76.

Industrial Design 85.431

Minor Industrial Design Project I

The minor industrial design projects mainly serve to enable the student to demonstrate his versatility. The choice of the minor projects, therefore, has to be in balance with the major project. Although preferred, it is not strictly required that the minor projects be product-design oriented, nor do they need to be derived from actual utilization-problem areas. They could also represent research in complementary design fields, such as communication, graphic design or design experiments. Although the minor design projects may be of a less complex nature than the major project, they should always conform to academic standards of quality and be

handled in the same systematic way and with the same thoroughness as the major project. See also: Industrial Design Projects, Fourth year Industrial Design Projects (p. 313).

Prerequisite: Industrial Design 85.331 or special approval of the Industrial Design Projects Committee.

Not offered 1975-76.

Industrial Design 85.432

Minor Industrial Design Project II

See Industrial Design 85.431

Prerequisite: Industrial Design 85.331 or special approval of the Industrial Design Projects Committee.

Not offered 1975-76.

Industrial Design 85.450

Colloquium Cultural Subjects

This colloquium is seen as an opportunity to introduce various cultural subjects by experts from these fields. The perspective of the colloquium is anthropological and the objective is to give the student a sense of context and relevance of industrial design as an integrated part of our culture.

Prerequisite: Industrial Design 85.200 ★ (Architecture 76.206 ★).

Not offered 1975-76.

Humanities

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First year standing or higher.

Day division: Lectures three hours a week.

B. Wand and others

Humanities 10.200

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from the points of view of history, philosophy, social science and literature.

Prerequisite: Second year standing or higher.

Day division: Lectures two hours a week.

Not offered 1975-76.

Science

Science 60.100

Man and His Environment (for Non-Science Students)

Introductory lectures treat the historical background of science, development of scientific methodology, and what science is and is not. The first half of the First term explores the origin, development, and evolution of the universe, stars, planetary systems, the elements, the earth, bio-chemicals, and life on earth. The goal is to show where man is in the universe, what he is, and how he came to be, as learned by science. The second half of the First term explores the subjects of evolution and ecology, or the generalizations of how living things live and respond in relationship to other living things, and the non-living environment, without emphasis on man. The Second term explores the activities of man and their ecological consequences, or their impact on the environment. Topics include man's evolution and his use and abuse of land, nature, fire, water, the oceans, air, and wildlife. Pollution topics include water, air, heat, radiation, insecticides, organic and inorganic chemicals and pest species. Lastly are considered human problems of the house, the city, transportation, solid wastes, human population growth characteristics, the growing demand for food, a search for causes (religion, economics, etc.), the limits to growth, the future, and what can be done.

Day division: Lectures three hours a week.

S. Peck

Science 60.110

Physics and Chemistry (for Engineering Students)

An introductory course for First year Engineering students offered jointly by the Departments of Chemistry and Physics. Atomic structure, periodic system; ions and valence, heat and thermodynamics; mechanics; kinetic theory; wave motion and optics. Diffraction and interference. X-ray spectroscopy and structure of solids. This course is not a prerequisite for further Chemistry courses. However, individual students wishing to take further Chemistry courses will be considered on their merits.

Prerequisites: Chemistry 65.010, Physics 75.010, Mathematics 69.101, or equivalents.

Day division: Lectures three hours a week, laboratory three hours a week.

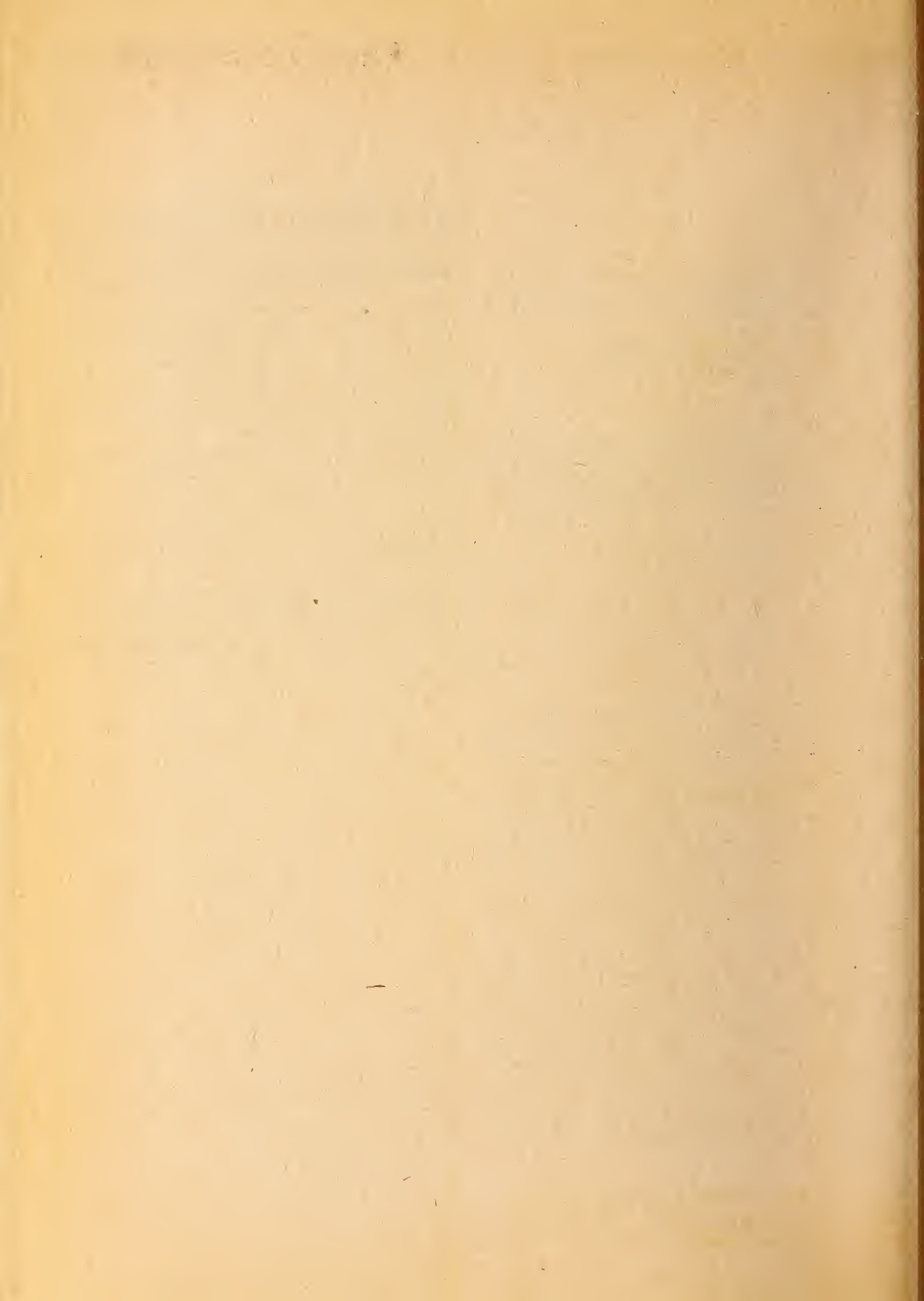
R.D. Barton, J.A. Koningstein

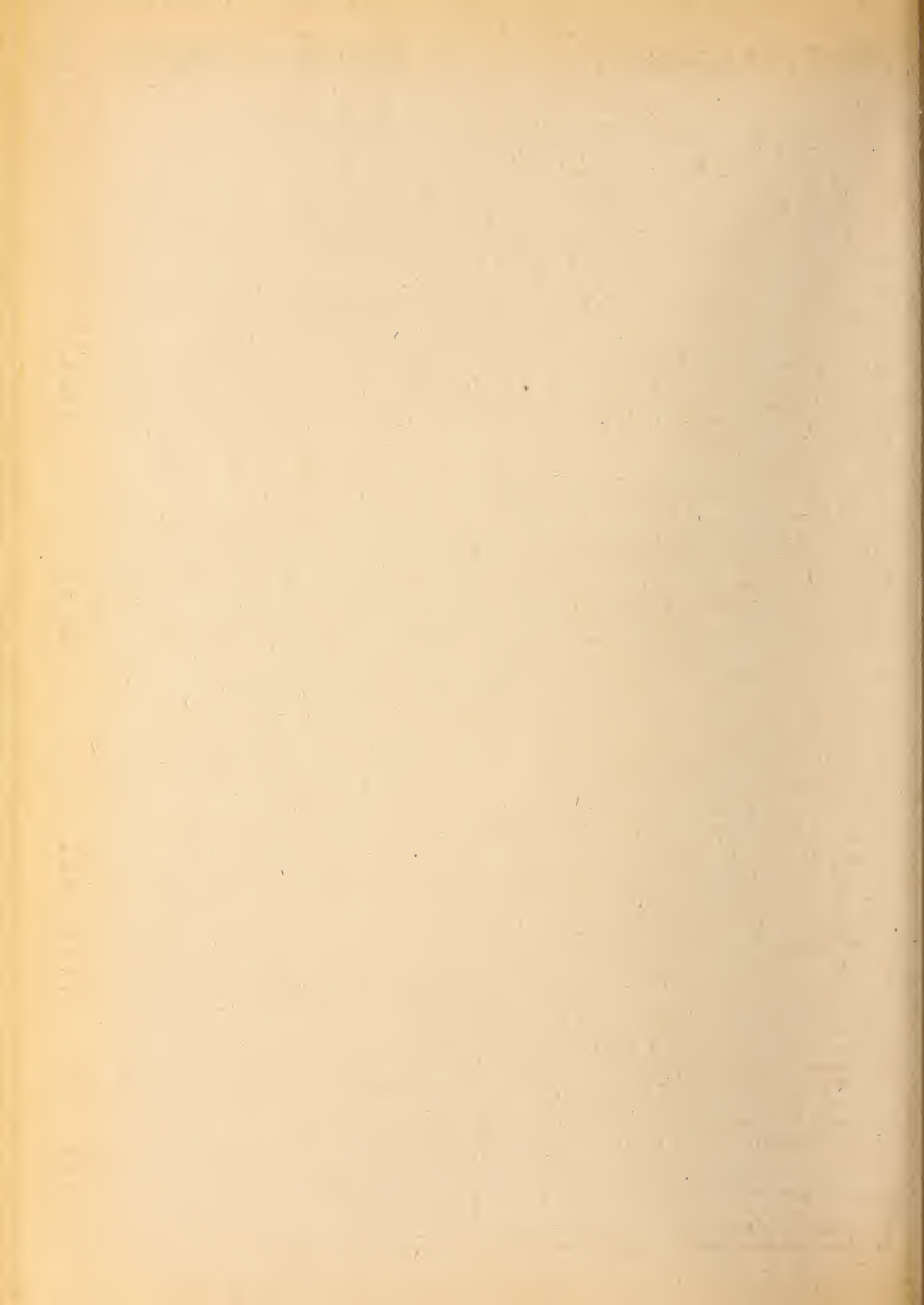
Other Courses

Computing Science, see p. 382.

Technology, Society and Environment Studies, see p. 390.

St. Patrick's College Interdisciplinary courses, see p. 236.





Officers of the Faculty

Dean

J.L. Wolfson

Secretary of the Faculty

C.A. Barlow

Departmental Chairmen

Biology, J.M. Neelin

Chemistry, J.W. ApSimon

Geology, J.M. Moore

Mathematics, D.A. Dawson

Physics, R.L. Clarke

Chairman of the Integrated Science Studies Committee

C.H. Langford

Chairmen of Interdepartmental Committees

Biochemistry, R.H. Wightman

Biology and Geology, K. Hooper

Chemistry and Geology, G.B. Skippen

Geology and Physics, G. Ranalli

Mathematics and Physics, M. Rahman

Chairman of the Committee on Admission and Studies

J.E. Hardy

Faculty Registrar

B.R. Lifeso

Administrative Officer of the Science Workshops

A.A. Raffler

General Information

The Faculty of Science includes the departments of Biology, Chemistry, Geology, Mathematics and Physics and provides course programs leading to the degrees of Bachelor of Science, Bachelor of Science in Integrated Science Studies and Bachelor of Science with Honours.

The Science degree program is designed to provide specialization in one field of study called the Major field while permitting the candidate to select other courses from complementary fields or disciplines in which he has a particular interest. The Major fields include Biology, Chemistry, Geology, Mathematics and Physics, and the corresponding programs are detailed in the departmental sections of the calendar.

For information about the Integrated Science Studies degree program see p. 351.

The Science degree program with Honours is designed for those students who wish to deepen and extend their

studies in one particular field or area for the purpose of preparing themselves for graduate studies, or for entrance to the Specialists' Certificate of the Ontario College of Education or other fields of scientific endeavour. Honours may be taken in Biochemistry, Biology, Chemistry, Geology, Integrated Science Studies, Mathematics, Physical Geography, Physics and Psychology. Combined Honours may be taken in Biology and Geology, Chemistry and Geology, Geology and Physics, and in Mathematics and Physics. The detailed programs are given in the appropriate departmental sections of the calendar. The Honours program of each student is under the direct supervision of an Honours adviser of the student's department.

Admission Requirements

Qualifying University Year in Science

The Ontario Secondary School Graduation Diploma with a minimum 65% average and including an appropriate preparation in Mathematics, Chemistry and Physics. (A majority of the credits presented must be in advanced or enriched phases.)

Bachelor of Science, Major Program

First Year

1. The successful completion of five courses approved for a Qualifying University year Science program with an average of C— or better in the courses in Mathematics and Science; or

2. The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including Functions, Calculus and two experimental sciences. Prospective students should note that, while only a 60% general average is required for admission, they should have at least 60% or third class honours in the mathematics and science subjects offered. Applicants from outside the province of Ontario must present acceptable equivalent certificates generally required for admission to universities in their own provinces and countries.

Advanced Standing

1. To be admitted to Second year a student must have completed the equivalent of the First year Science program with the required academic standing.

2. Applications for admission to the Third or subsequent years will be evaluated on their merits and advanced standing granted for studies undertaken elsewhere when these are recognized as the equivalent of subjects offered at Carleton University. Work taken in the Faculty of Engineering may be counted towards a degree in

Science should the student wish to transfer from the Faculty of Engineering at the end of his First or Second year.

3. Students not admitted to a degree program but taking courses at Carleton University as special students may, on transfer to a Science degree program, receive credits for not more than seven courses, five of which must meet the First year promotion requirements.

Bachelor of Science Honours Program

1. (a) A new student desiring admission to Honours in Science should so indicate on the application for admission to undergraduate studies. The student may indicate the Honours program desired, in which case the application will be forwarded by the Registrar to the appropriate department or committee for approval. If the student does not wish to indicate the particular program, he may be admitted to First year Honours Science. Any such student must elect a particular Honours program before entering Second year. (b) An "in course" student wishing to enter an Honours program must apply to the chairman of the appropriate department or committee.

2. For entry to the First year of an Honours program a student must have an average of 65% or better in the subjects of Grade 13, as listed under the admission requirements for the Major program, or have a grade point average of 4.0 or better in the courses of Qualifying University year and the recommendation of the Honours department or committee. Students presenting credits for one or more repeated subjects or courses may not be admitted directly into an Honours program except on the recommendation of the department or committee concerned.

3. For entry to an Honours program after the completion of First year, a student must have a grade point average of 4.0 or better in the Honours subject(s), an overall grade point average of 3.6 or better and the recommendation of the Honours department or committee.

4. For continuance in an Honours program the student must maintain a grade point average of 4.0 or better in the Honours subject(s), an overall grade point average of 3.6 or better and be recommended by the Honours department or committee. At the beginning of his last five courses the student must have (a) a grade point average of 4.0 or better in the Honours courses (b) an overall grade point average of 3.6 or better (c) a grade of C- or better in at least half of the courses to be credited towards his degree (d) the recommendation of his Honours department or committee. Otherwise the student may not remain in Honours.

5. Students applying for admission to Honours in Science at Carleton after having obtained a degree from Carleton or another university shall meet the same criteria as specified in 2 to 4.

6. No student may be admitted to Honours in Science without satisfying the requirements for entry to the corresponding Major program.

7. While the consent of the department or committee concerned is necessary for entry to an Honours program, the department cannot establish a standard of entrance based on a grade point average which is higher than that established by the Faculty as set out in the foregoing paragraphs. A student who considers that he meets the requirements for entry to an Honours program but who has not been accepted by any department may appeal to the Science Committee on Admission and Studies for review of his case. The Committee will report to the Science Faculty Board on all such appeals. It should be noted, however, that departmental capacities to accept all qualified Honours candidates may be limited by physical resources.

8. A student in his final year of a Major degree program wishing to be considered for entry to an Honours program must apply to the Honours department to have his name withdrawn from the graduation list before March 1 of that year. If subsequently he is not accepted for an Honours program, his name will be returned to the graduation list.

Course Requirements

Qualifying University Year in Science

A Qualifying University year is offered which is the equivalent of Ontario Grade 13 (Senior Matriculation). The program consists of the following five courses:

1. Mathematics 69.010;

2. Two courses selected from Chemistry 65.010, Physics 75.010, Biology 61.101, Geology 67.100;

3. Two other courses selected from any of the foregoing subjects not already presented and from other courses approved for a Qualifying University year Science program as follows:

Science: Biology 61.101, Chemistry 65.010, Geology 67.100, Mathematics 69.010 or 69.011, Physics 75.010.
Arts: English 18.010, French 20.010, German 22.015 or 22.016, Greek 15.015, History 24.014, Italian 26.015, Latin 05.020, Music 30.100 or 30.160, Portuguese 38.016, Russian 36.015, 36.016 or 36.020, Spanish 38.015, or any Arts course approved for First year Science students for which the student has the required prerequisite. (See below.)

Note: Normally, a student admitted to degree studies in the Faculty of Science with deficiencies in meeting the admission requirements for First year (see p. 323), will be subject to the promotion regulations governing

Qualifying University year students. (See p. 323.) However, students whose selection of courses satisfy the requirements of the First year Science program (see below), will be subject to the promotion regulations governing First year students.

First Year

The First year program leading to the degree of Bachelor of Science consists of five courses approved for a First year Science program including (a) Mathematics (b) an experimental Science course chosen from Biology, Chemistry, Geology, Physics (c) an Arts elective (d) two additional courses chosen from Science, Mathematics, Arts, Computing Science (except 95.101 ★), or Engineering 88.202 ★.

In establishing their First year program of courses, students should consult with the chairman of their Major department, the chairman of the Integrated Science Studies Committee, or the chairman of the appropriate interdepartmental committee. Students who have not yet selected a Major field should select those First year courses which will give them a wide choice of fields for the Second year. Dependent on the field, the five courses of First year should include the following:

1. *Biochemistry*: Biology 61.100, or 61.101, Chemistry 65.100, Mathematics 69.100, Physics 75.100 and an approved Arts elective;
2. *Biology*: Biology 61.100 or 61.101, Chemistry 65.100, Mathematics 69.100, or 69.101, or 69.102 and 69.112;
3. *Chemistry*: Chemistry 65.100, Physics 75.100, and either (a) Mathematics 69.100, and one of Biology 61.100 or 61.101, or Geology 67.100 or (b) Mathematics 69.102 and 69.112;
4. *Geology*: Chemistry 65.100, Geology 67.100, Mathematics 69.100, or 69.101 and one of Biology 61.100 or 61.101, Physics 75.100 or 75.105;
5. *Mathematics*: Mathematics 69.102 and 69.112;
6. *Physics*: Chemistry 65.100, Mathematics 69.100 or 69.102 and 69.112, Physics 75.100. If Mathematics 69.100 is taken, one of Biology 61.100 or 61.101, or Geology 67.100 is also required;
7. *Physical Geography*: Mathematics 69.100 or 69.101, Chemistry 65.100, Geology 67.100, and one of Biology 61.100 or 61.101, or Physics 75.100. Geography 45.101 should be taken as the Arts elective;
8. *Psychology*: Mathematics 69.100 or 69.101, and one of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105. Psychology 49.100 should be taken as the Arts elective.

Courses Approved for A First Year Science Program

Science Courses

Biology

- 61.100 General Biology
- 61.101 Introductory General Biology; or if one of these courses has been completed in Qualifying University year, one of:
- 61.200 Form and Diversity
- 61.215 Genetics

Chemistry

- 65.010 Introductory Chemistry
- 65.100 General Chemistry, or if this course has been completed prior to First year, with permission:
- 65.220 Elementary Organic Chemistry
- 65.222 Introductory Organic Chemistry
- 65.210 Introductory Physical Chemistry
- 65.250 Elementary Inorganic and Analytical Chemistry

Geology

- 67.100 General Geology
- 67.111 ★ Environmental Geology I
- 67.112 ★ Environmental Geology II, or if one of these full course equivalents has been completed in Qualifying University year, two of:
- 67.221 ★ Crystallography and Optical Mineralogy
- 67.222 ★ Mineralogy
- 67.228 ★ Geochemistry and Petrology
- 67.233 ★ Stratigraphy I
- 67.234 ★ Palaeontology I
- 67.281 ★ Structure and Geophysics

Mathematics

- 69.100 Elementary Calculus and Algebra
- 69.101 Introductory Mathematics
- 69.102 Calculus and 69.112 Algebra, or, if 69.100 has been completed in Qualifying University year, two of:
- 69.207 ★ Elementary Calculus II
- 69.217 ★ Linear Algebra
- 69.257 ★ Introduction to Statistics

Physics

- 75.010 Pre-University Physics
- 75.100 Introductory Physics
- 75.105 Introductory Physics for Non-Majors

Arts Courses

Any course available to a First year Arts student as listed on p. 53 with the exception of (a) Accounting 41.100 (b) Geography 45.210 (c) Computing Science 95.101 ★ and (d) any course offered by the departments in the Faculty of Science. Advanced courses in certain Arts disciplines may be included if the prerequisite has been completed prior to First year.

Courses for Subsequent Years

Major Program

Candidates will ordinarily take at least ten courses beyond the completion of First year (a) at least four more courses in the Major subject (b) at least two Science courses above the First year level in a department or departments other than the Major department (c) sufficient electives to meet the program requirement of two Arts electives and one free option.

The program of each student is under the direct supervision of a full-time member of the department in which he takes his Major. In several departments most of the more advanced courses will be given, in whole or in part, during the day only. Candidates are advised to consult their Major departments as early as possible to arrange their programs.

Candidates wishing to change their Major field of study may do so only with the approval of both departments concerned.

Integrated Science Studies Program

For course requirements see p. 351.

Honours Program

Students for a degree with Honours will ordinarily take at least 15 courses beyond the completion of First year. (See note on p. 28 regarding transfers to the Faculty of Science from other institutions or faculties.) With the permission of the department or committee concerned, it is possible for a candidate of exceptional ability to complete an Honours program in certain fields in three years from Senior Matriculation by taking six courses in each winter session and one in each of the summers.

The course patterns for each Honours program are detailed individually and requirements lie within the discretion of the appropriate department or committee. The student should therefore read the appropriate calendar instructions and consult the chairman of the appropriate department or committee. Capacities for Honour students will depend on departmental resources and the nature of the program.

Graduating essays, theses or special projects must be submitted to the chairman of the Honours department or committee before April 1, or another date as specified, for the Spring graduation, or by the first day of classes in September for Fall graduation. If this requirement has not been met, the student must re-register for the course concerned and pay the appropriate fee.

A student who fails to maintain Honours standing may

not remain in Honours, and must discuss a new program with the Chairman of his department.

Science Continuation Courses

1. All courses offered in the Science Faculty beyond First year.

2. All courses offered in Computing Science except 95.101★.

Technology, Society, Environment (TSE) 59.301, 59.302. Geography, 45.210, 45.303★, 45.308, 45.312, 45.325, 45.345, 45.402★, 45.411★, 45.412★, 45.413★, 45.414★, 45.415★, 45.416★, 45.417★, 45.424★.

Psychology 49.200★, 49.201★, 49.204★, 49.205★, 49.220★, 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.270★, 49.271★, 49.305, 49.321★, 49.325, 49.330★, 49.331★, 49.332★, 49.355★, 49.356★, 49.375★, 49.376★, 49.380★.

Notes

1. Computing Science 95.101★ is not acceptable for credit in the Science Faculty.

2. The following courses are acceptable only as free options for Science students: Biology 61.190, Mathematics 69.140, Physics 75.190, Physics 75.195, Science 60.100.

Arts Courses not Acceptable as Arts Electives

Accounting

All courses

Economics

43.220 (Sociology 53.205)

Geography

45.210, 45.303★, 45.308, 45.312, 45.325, 45.345, 45.402★, 45.411★ (Geology 67.415★), 45.412★, 45.413★, 45.414★, 45.415★, 45.416★ (Geology 67.418★), 45.417★, 45.424★ (Engineering 82.424★, Geology 67.417★)

Psychology

49.200★, 49.201★, 49.204★, 49.205★, 49.220★, 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.270★, 49.271★, 49.305, 49.321★, 49.325, 49.330★, 49.331★, 49.332★, 49.355★, 49.356★, 49.375★, 49.376★, 49.380★.

Academic Standing

Grading System

Standing in courses will be determined by departments and will be shown by alphabetical grades.

The grades used with their corresponding grade points are as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

Standings to represent special circumstances are as follows:

E

Interpreted as 40 to 49 per cent, or a grade which may be raised to a D- if the student's grades in all other courses taken in the academic session were satisfactory. Applicable only to First year Science students in courses approved for a First year Science program. (See p. 325.) For a First year Science student taking five courses in a winter session, a grade of E becomes a D- if the student has passed all but one of his courses with at least 2 grades of C- or better and total grade points of 16 or more, otherwise an E becomes an F.

Aeg

Pass standing granted although absent from final examinations. Aegrotat standing is granted only by the Science Committee on Admission and Studies in response to a student's application which meets the stipulations for examinations.

F

Failure. No academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of incomplete term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing. No academic credit.

Abs

Failure due to absence from the final examination where the necessary term work has been completed; or withdrawal after the published deadline. Supplemental privileges withdrawn. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Science Committee on Admission and Studies for deferred examination privileges.

IP

In Progress. A designation for students who have not completed their Honours thesis by June 1 of the current

Academic Session. These students must re-register for the course and pay half of the course fee.

Course Load

The normal course load for a full-time student in the Faculty of Science, during the winter session, is the equivalent of five full courses. The normal course load for a part-time student, in the winter session, is the equivalent of two full courses.

Students may register for a maximum of two courses in the summer session, i.e. two Evening courses, or one Evening and one Day course, or two Day courses.

A student may exceed the normal course load only with the Registrar's permission, which may be granted if a C average is maintained overall and in the Major field, and if recommended by the Major department. Part-time students may be granted permission if a C average is obtained in a minimum of two courses in the previous session.

Promotion and Failure

Full-time Students

To be promoted to the Credit System from First year, a full-time Science student must have passed five approved courses and attained a grade of C- or better in at least two of these courses.

For a student without advanced standing in any First year courses, these five courses must be selected from those approved for a First year Science program.

For a student (not repeating First year) with advanced standing in some First year courses, these five courses must include sufficient courses to complete the First year Science program; the remainder of the five courses may include courses beyond the First year provided the student has retained credit for the prerequisite First year courses. In the Major program one of the grades of C- or better must be in the intended Major subject. In the Integrated Science Studies program, the student must have attained a grade of C- or better in one course from each of the Science and non-Science sequences.

This must be accomplished in one calendar year with not more than one summer course, supplemental or special supplemental examination. The course work of those First year Science students who almost meet promotion requirements is reviewed by the Dean's Committee on Promotion.

A full-time student who does not meet the requirements of promotion by the end of August examinations will have failed First year.

Part-time Students

To be promoted to the Credit System from First year, a part-time student must, in the first six final examinations, have passed five courses approved for a First year Science program and attained a grade of C- or better in at least two of these courses.

In the Major program one of the grades of C- or better must be in the intended Major subject. In the Integrated Science Studies program, the student must have obtained a grade of C- or better in one course from each of the Science and non-Science sequences.

All Degree Students

A failed student may repeat First year without encumbrances, retaining credit towards his degree (but not towards the completion of First year) for the following courses: (a) those graded C- or better if more than two courses were passed; or (b) those graded B- or better if only one or two courses were passed.

A student repeating First year may register only in courses approved for a First year Science program, but may include one course beyond the First year provided the student has retained credit for the prerequisite First year course(s).

Should a student fail First year a second time, he may not re-enter a degree program in the Faculty of Science.

After promotion to the Credit System the student will accumulate course credits under a pattern approved by the appropriate department or committee.

Supplemental Examination Privileges

First year full-time students may write one supplemental or special supplemental examination provided that success in this examination will complete the First year program.

First year part-time students may write one supplemental or special supplemental examination in the first five courses of their program credited towards the degree.

Major degree students have the privilege of writing supplemental or special supplemental examinations, or repeating or replacing courses, subject to the following restriction: After admission to the credit system, the ratio of total number of (full course equivalent) examinations to the total number of credits required may not exceed three to two. In particular, a student who requires ten more credits has the equivalent of at most fifteen full course examinations available to complete his program.

Honours degree students have the privilege of writing

supplemental or special supplemental examinations, or repeating or replacing courses subject to the following restriction: After admission to the credit system, the ratio of total number of (full course equivalent) examinations to the total number of credits required may not exceed six to five. In particular, a student who requires fifteen more credits has the equivalent of at most eighteen full course examinations available to complete his program.

The number of examinations available to a student who transfers from another institution or from another program, will be determined on a *pro rata* basis and will be specified at the time of his admission.

When a student is examined in a course which previously has been declared extra to his degree program, this examination does not affect the remaining number of available examinations.

A student who cannot complete his program without exceeding the available number of examinations loses his undergraduate status in the Faculty of Science.

Graduation

General Regulations

1. Every student will be required to complete at least his last five courses at Carleton;
2. A student who takes courses elsewhere with a letter of permission from the Science Committee on Admission and Studies may, with the approval of the appropriate department or committee, use the grades to meet graduation requirements;
3. A student who transfers to the Faculty of Science from another institution must include in his courses presented for degree (whether obtained at Carleton or elsewhere) at least:
 - (a) two Arts electives if on transfer he received credit for less than ten courses (or equivalent);
 - (b) one Arts elective if on transfer he received credit for ten or more courses.

Major Degree Students

To qualify for graduation a student must:

1. present credits for fifteen approved full courses (or equivalent) beyond Qualifying University year with not more than two courses below the 100 level (at least half of these credits must (a) be at the 200 level or higher, and (b) have a grade of C- or better);
2. have an average of C- or better in the courses in his or her Major subject or subjects.

3. after entry to the credit system, have completed his or her program with not more than three (full course equivalent) examinations for every two credits required. (Examinations include supplemental and special supplemental examinations, course repetitions and replacements.) A part-time student or a full-time student who has interrupted his studies must complete his program within seven years after entry to courses beyond First year;

4. include at least two courses in the Major subject or subjects in the last five courses taken for credit;

5. be recommended by his Major department(s) and the Science Faculty Board (see general regulation 3);

To meet the requirements for the C- average in the Major stated above only those courses in the Major necessary to make up the required total for graduation in the Major department need be counted. All obligatory courses must be counted.

A graduating student in a Major program of the Faculty of Science will be designated as graduating "with distinction" if:

1. he or she has successfully completed the fifteen courses required for the degree without a course failure, supplemental examination, course repetition or replacement;

2. the ten courses taken beyond the First year requirements (a) were approved by the candidate's Department or Faculty and were completed while he or she was a registered student of Carleton University; (b) were graded by Carleton University either directly or by acceptance and translation of the grade from another academic institution (at least five of these courses must be taken at Carleton University); (c) were graded under the Carleton University system and the grade point total was at least 90 grade points.

Integrated Science Studies Degree Students

See p. 351.

Honours Degree Students

To qualify for graduation with a Bachelor of Science degree with Honours a student must:

1. present credits for at least twenty approved full courses (or equivalent) beyond Qualifying University year with not more than two courses below the 100 level and not more than seven below the 200 level;

2. meet the requirements of the Faculty of Science and of the appropriate department or committee both with respect to course and grade requirements;

3. after entry to the credit system, have completed his or her program with not more than six (full course equivalent) examinations for every five credits required. (Examinations include supplemental and special supplemental examinations, course repetitions and replacements.) A part-time student or a full-time student who has interrupted his studies must complete his program within seven years after entry to courses beyond First year;

4. include at least two courses in the Honours subject or subjects in the last five courses taken;

5. be recommended by the appropriate department or committee and the Science Faculty Board.

The Honours degree will not be awarded to students taking less than the equivalent of five full courses for credit at Carleton.

Classes of Honours Degrees

Four classes of Honours are awarded, determined on the basis of the grade point average as follows:

First Class

9.0-12 in Honours subject, and
6.0 or better overall

High Second Class

8.0 or better in Honours subject, and
5.0 or better overall

Second Class

6.0 or better in Honours subject, and
4.0 or better overall

Third Class

4.0 or better in Honours subject, and
3.6 or better overall

Departments may recommend the higher class of Honours degree in the case of a student one of whose indices is in the appropriate higher range and the other within 0.2 grade points of the higher range.

To determine the class of degree for students with Combined Honours, the average is taken in each of the two subjects and the simple average of the two is used. If agreeable to the committee concerned, the final average may be computed on the basis of the weighted average of the required number of Honours courses in the two subjects.

Departments may use discretion for establishing the class of degree in counting the number of Honours courses where students have more than the minimum number of courses.

Biochemistry

Members of the Committee

Chairman

To be announced

Committee

K.W. Joy (*Biology*)

J. Sinclair (*Biology*)

C.S. Tsai (*Chemistry*)

D.C. Wigfield (*Chemistry*)

R.H. Wightman (*Chemistry*)

H. Yamazaki (*Biology*)

Honours Program

The Biochemistry program is administered by the Biochemistry Committee of the Faculty of Science comprising faculty members from the departments of Biology and Chemistry. A student interested in Biochemistry may obtain a basic training in this interdisciplinary subject in a four-year program leading to an Honours B.Sc. degree in Biochemistry. The program is based on several courses in Biology and Chemistry, since a sound knowledge of these disciplines is fundamental to an understanding of Biochemistry.

Admission and Course Requirements

Entry to the Biochemistry program will normally be into the Second year, and will be approved on satisfactory completion of the First year program in the Faculty of Science. Applicants must have at least C- grades in both Biology 61.100 and Chemistry 65.100, and must comply with the general regulations for entrance into Honours degree programs in the Faculty of Science. Students interested in this program should select carefully their First year courses, in consultation with a member of the Biochemistry Committee. Twenty course credits are required for the degree, to be taken in the following pattern approved by the Committee Chairman. It should be noted that certain courses in the program have acceptable equivalents which can also be approved by the Chairman.

1. Biology 61.100, 61.215, 61.325 ★, 61.335 ★ and one of 61.417, 61.420, 61.425, 61.426 ★, 61.427 ★, 61.435 or 61.455.

2. Chemistry 65.100, 65.210, 65.220, 65.320, 65.301 ★ or 65.325 ★.

3. Biochemistry 63.300, 63.400.

4. Mathematics 69.100, Physics 75.100 and at least one of Mathematics 69.202 or Physics 75.230.

5. Two approved Arts courses.

6. A research project Biochemistry 63.498.

7. Of the remaining three and one-half credits:

(a) not more than one credit from Chemistry 65.250, Biology 61.220 ★, 61.221 ★, 61.230 ★, 61.250 ★, Mathematics 69.250 or 69.258 ★, 69.202, Physics 75.230.

(b) at least one and one-half credits from Biology 61.417, 61.420, 61.425, 61.426 ★, 61.427 ★, 61.435, 61.455, Chemistry 65.310 or 65.311 ★, 65.350, 65.420 ★, 65.422 ★, 65.423 ★;

(c) free option.

Courses Offered

Biochemistry 63.300

General Biochemistry

Chemistry and metabolism of proteins, lipids, carbohydrates and nucleic acids. Mechanism of action of enzymes and metabolic control mechanisms. Photosynthesis. Biological oxidation. Biosynthesis.

Prerequisites: Biology 61.220 ★ or Chemistry 65.210, and 65.222 or 65.220, or permission of the Biochemistry Committee.

Day division: Three lectures and four hours of laboratory work a week.

J. Neelin, C.S. Tsai, H. Yamazaki (laboratory instructor)

Biochemistry 63.400

Biochemistry of Macromolecules

The course will deal with advanced work on the structure, properties, and regulation of biosynthesis of biological macromolecules. The laboratory experiments will emphasize analytical procedures which are commonly used in the characterization of macromolecules and in studying their biochemical properties.

Prerequisite: Biochemistry 63.300.

Day division: Lectures and laboratory six hours a week.

C.S. Tsai, H. Yamazaki

Biochemistry 63.498

Research Project

Students will carry out a research project in either the Biology or Chemistry departments, under the supervision of a faculty member. This course requirement is equivalent to either Biology 61.498 or Chemistry 65.498.

Officers of Instruction

Chairman

To be announced

Associate Chairman (Undergraduate Studies)

G.R. Carmody

Associate Chairman (Graduate Studies)

Margaret E. McCully

Professors

C.A. Barlow

H.F. Howden

V.N. Iyer

K.W. Joy

J.M. Neelin

H.H.J. Nesbitt

G. Setterfield

J.A. Webb

F. Wightman

Associate Professors

Isabel L. Bayly

T.W. Betz

G.R. Carmody

M.B. Fenton

D.R. Gardner

W.I. Illman

P.E. Lee

Margaret E. McCully

H.G. Merriam

D.A. Smith

H. Yamazaki

Assistant Professors

S.L. Jacobson

J.D.H. Lambert

J. Sinclair

Adjunct Professors

E.L. Bousfield

C.H. Buckner

G. Haggis

D.G. Harcourt

L. Lefkovitch

E.E. Lindquist

J. McNeil

A.T. Matheson

D. Oliver

H. Robertson

D.M. Wood

Sessional Lecturers

Jean Fletcher

Mary Lou Florian

Margaret Gochnauer

Roslyn Grey

Ann Hutton

Curator of Cryptogamic Botany, W.I. Illman

Curator of Greenhouses, H. Datema

Curator of Herbarium, I.L. Bayly

Curator of Zoology Museum, D.A. Smith

General Information

Students intending to Major in Biology are strongly advised to acquire a good background in Chemistry and Physics at the Grade 13 or equivalent level.

Undergraduate Programs

Students reading for an Honours degree or a Major in Biology must arrange their courses in consultation with the Chairman or Associate Chairman of the Department, in one of the patterns outlined below.

Major Programs

Bachelor of Science in Biology

Students reading for a Bachelor of Science degree with a Major in Biology must satisfy the general requirements for Science stated on pp. 324-329 and take the following fifteen courses in a pattern approved by the Chairman:

1. Six Biology courses to include 61.100* or 61.101*, 61.200, 61.215, 61.220★, 61.325★, 61.335★, 61.360.
2. Chemistry 65.100, Physics 75.100* and Mathematics 69.100 or 69.101.
3. Two additional Science courses above the 100 level and not in Biology.*
4. One additional Science course.*
5. Two approved courses in the Faculty of Arts.
6. One free option.

*See *Notes on Programs*, following program descriptions, p. 333.

Bachelor of Arts in Biology

Students who plan to read for a Bachelor of Arts degree with a Major in Biology must satisfy the general requirements of the Faculty of Arts stated on pp. 52-57 and must maintain at least a C – average in Biology courses. The student will follow either the Major Program or Combined Major Program described below. In either case the approval of the Chairman or Associate Chairman of the Biology Department is required. For the Double Major program, the student should consult with

the department of the other Major subject.

Major Program in Biology:

1. Six Biology courses to include 61.100* or 61.101*, 61.200, 61.215, 61.220★, 61.360, 61.391★.
2. Chemistry 65.100.
3. One additional science course not in Biology.
4. Four other courses in the Arts Faculty to include at least three from one department.
5. Three free options, one of which must be at an advanced level.

Combined Major Program in Biology:

1. Five Biology courses, 61.100* or 61.101*, 61.200, 61.215, 61.220★, 61.360, 61.391★.
2. Chemistry 65.100.
3. One additional science course not in Biology.
4. The requirements for a Combined Major in an Arts department.
5. Three or four free options.

*See *Notes on Programs*, following program descriptions, p. 333.

Honours Programs

Honours in Biology: (B.Sc. Hons.)

Students planning a professional career in Biology are strongly advised to enter the Honours program as soon as possible, and certainly by the end of the Second year. An Honours degree is almost essential for admission to graduate studies. Students reading for an Honours B.Sc. degree in Biology must satisfy the general requirements for Honours stated on pp. 324-329 and take the following twenty courses in a pattern approved by the Chairman:

1. Seven Biology courses to include 61.100* or 61.101*, 61.200, 61.215, 61.220★, 61.325★, 61.335★, 61.360, 61.498.
2. Chemistry 65.100, Physics 75.100* and Mathematics 69.100 or 69.101.
3. Two additional Science courses above the 100 level and not in Biology*.
4. Four advanced Science courses, selected in consul-

tation with a faculty member working in the area of specialization chosen by the student.

5. One additional course, chosen in consultation, related to the student's area of specialization.
6. Two approved courses in the Faculty of Arts.
7. One free option.

*See *Notes on Programs*, following program descriptions, p. 333.

Honours students must demonstrate a reading knowledge of French, German or Russian. Fourth year students are strongly urged to attend the departmental research seminars.

Selection of Fourth year courses can introduce into the student's program a certain amount of specialization. Possible areas of specialization include molecular, cellular and developmental biology, plant and animal physiology, ecology, and systematics. *Courses should be chosen in consultation with the Chairman or a faculty member working in an area close to the interests of the student.* This consultation should preferably begin before entering the Third year, to ensure that courses which may be given only in alternate years are taken in the correct sequence. In any case, students must consult with the Chairman before registering in the Fourth year.

Students wishing to obtain the Ontario College of Education Interim High School Assistant's Certificate, Type A, are advised to consult the Chairman as soon as possible in their university career in order that an appropriate Honours program may be arranged.

Combined Honours in Biology and Geology

Students desiring a comprehensive basic training in both Biology and Geology may apply for admission to a Combined Honours program, on completion of the First year of the Science program. Applicants must be of Honours standing and must have achieved grades of C – or better in both Biology 61.100 or 61.101 and Geology 67.100.

Course requirements of the Combined Honours program are as follows:

1. Biology 61.100 or 61.101, Chemistry 65.100, Geology 67.100, Mathematics 69.100 or 69.101, Physics 75.100 or 75.105.
2. Ten courses in Biology (or Biochemistry) and Geology beyond First year level, including at least one course involving a field camp. Not more than six courses in this group should be taken in one department.
3. Biology 61.498 or Geology 67.498.

4. One half-course in Statistics and one half-course in Computing Science.

5. Three optional courses, at least two of which must be acceptable courses in the Faculty of Arts.

Notes on Programs

(See items marked * in programs above.)

Students who have completed Grade 13 Biology before entry to First year may take Biology 61.100. All other students must take Biology 61.101.

Students who have not completed Grade 13 Physics (or Physics 75.010) before entry to First year may substitute Physics 75.105 for Physics 75.100.

In choosing additional Science courses above the 100 level and not in Biology, students may select from the Science continuation courses listed on p. 326. In their selections, recent Biology students have favoured: Biochemistry 63.300, 63.400; Chemistry 65.210, 65.222, 65.320; Geology 67.234*, 67.235; Mathematics 69.250, 69.258*; Computing Science 95.200*; Technology, Society and Environment 59.301, 59.302; Geography 45.210, 45.308, 45.345; Psychology 49.220*, 49.221*, 49.270*. In addition, Geology 67.202*, Mathematics 69.207*, 69.208*, Physics 75.230 are suggested for some students.

Graduate Program

The Department of Biology offers programs of study and research leading to M.Sc. and Ph.D. degrees in molecular, cellular and developmental biology, plant and animal physiology, ecology and systematics. Details will be found in the Graduate Studies and Research Calendar.

Courses Offered

Biology 61.100

General Biology

A lecture and laboratory course dealing with basic principles and concepts involved in understanding the origins, organization, functions, and behaviour of living organisms. Subject material drawn from the following major areas will be covered: molecular and cellular organization of living systems, origin of life, evolutionary mechanisms, molecular processes and metabolism, energy transformations, membrane structure and function, reproduction and inheritance, genetic mechanisms, development and differentiation, the course of evolution, adaptive form and functions in plants and animals, whole-organism behavioural responses, population dynamics, characteristics of communities and

ecosystems. The course is designed for students who have completed Grade 13 Biology and will assume some background in the basic facts of general biology. Emphasis in lectures will be on integrating particular experiments and observations on living systems into general theories and concepts which apply over large groups of organisms. The laboratory will provide opportunity for experiments and observations on a wide range of life processes and organisms, at the molecular, cellular, organism and population levels of organization. Prerequisite: Ontario Grade 13 Biology or equivalent. Precludes additional credits for Biology 61.101, 61.190. Day division: Lectures three hours a week, laboratory (including tutorials) three hours a week.

Biology 61.101

Introductory General Biology

An introductory lecture and laboratory course presenting the factual basis and principles of biology. The general areas covered are similar to those in Biology 61.100 (above) but greater emphasis will be placed on particular observations, experiments and facts which provide the basis for important generalizations about living things. The laboratory will be similar to that in Biology 61.100. This course is designed for students who have not completed Grade 13 Biology or equivalent. Precludes additional credits for Biology 61.100, 61.190. Day division: Lectures three hours a week, laboratory (including tutorials) three hours a week.

Biology 61.190

Biology and Man

A course dealing with the major biological concepts which bear directly on human behaviour, thought and culture. Subject materials will be drawn from the following main areas: general organization and properties of living systems, growth, development and differentiation of cells and organisms, properties and functions of genes, sexual reproduction and inheritance, heredity and environment, special problems in human genetics, possibilities and problems in gene manipulation, evolutionary mechanisms, origin of life and the course of evolution, evolution of man, organization of the human body, the immune response, hormonal regulation of metabolism and reproduction, human embryology and abortion, the nervous system, sensory perception, learning, instinct and behaviour, effects of drugs, the ecological niche, man and energy, the ecosystem concept, cycling matter, noncycling energy, ecosystems managed for human benefit. Workshops will provide experience in laboratory experiments, films and demonstrations, tutorials, group discussion, field trips, seminars, etc. in areas parallel to the lecture material. The course is intended primarily for students who would not normally plan further formal training in biology. Precludes additional credits in Biology 61.100, 61.101. Not a Science credit for Biology Majors. Evening division: Lectures three hours a week, workshop three hours a week.

Biology 61.200

Form and Diversity

A review of the diversity of plants and animals in relation to structure, function and the habitats which they occupy.

Prerequisite: Biology 61.100 or 61.101.

Day and Evening divisions: Lectures three hours a week, laboratory three hours a week.

I. Bayly, A. Hutton, H.H.J. Nesbitt

Biology 61.204 ★

Invertebrate Morphology

Classification, functional morphology, development of invertebrate animal groups.

Prerequisite: Biology 61.100 or 61.101.

Evening division, First term: Lectures three hours a week, laboratory four hours a week.

Biology 61.209 ★

Morphology of Lower Plants

The morphology, reproduction and evolution of lower plants.

Prerequisite: Biology 61.100, 61.101 or 61.200.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

W.I. Illman

Biology 61.215

Genetics

A lecture and laboratory course on the mechanisms of inheritance and the nature of gene structure, composition and function.

Prerequisite: Biology 61.100, 61.101 or 61.200.

Day division: Lectures two hours a week, laboratory four hours a week.

V.N. Iyer

Biology 61.220 ★

Cell Physiology

The cell concept and the basic processes fundamental to life at the cellular level.

Prerequisites: Biology 61.100, 61.101 or 61.200, and Chemistry 65.100.

Day division, First term: Lectures three hours a week, tutorial or laboratory four hours a week.

J. Sinclair

Biology 61.221 ★

Cytology

The structure, composition, function and development of the major systems of cells and their organelles.

Prerequisite: Biology 61.220 ★.

Day division, Second term: Lectures two hours a week, laboratory four hours a week.

P.E. Lee

Biology 61.230 ★

Introductory Microbiology

The biology of microorganisms, particularly in relation to their physiology and economic significance.

Prerequisite: Biology 61.220 ★.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

K.W. Joy

Biology 61.250 ★

Bioenergetics

A course dealing with the role of energy in biology. Topics dealt with include energy flow in ecosystems; energy exchange between an organism and its environment; animal locomotion; vision as an energy detection phenomenon.

Prerequisites: Biology 61.220 ★ and Physics 75.100 or 75.105, or permission of the instructor.

Day division, Second term: Lectures three hours a week, tutorial one hour a week.

J. Sinclair

Biology 61.325 ★

Plant Physiology

The main topics in physiology and metabolism of plants including nutrition, growth, germination and factors controlling these processes.

Prerequisite: Biology 61.220 ★ or Chemistry 65.222; Biology 61.200 or permission of the instructor.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

J.A. Webb

Biology 61.335 ★

Animal Physiology

The properties of physiological systems and components of animals with emphasis on their physicochemical bases.

Prerequisites: Biology 61.220 ★ or Chemistry 65.210. Physics 75.100 or 75.105, and Mathematics 69.100 or 69.101 are strongly recommended.

Day division, First term: Lectures three hours a week, laboratory four hours a week.

S. Jacobson

Biology 61.360

Ecology

A lecture and laboratory course on the principles of plant and animal ecology.

Prerequisites: Biology 61.200 and 61.215 or equivalents. Day division: Lectures two hours a week, laboratory and seminar four hours a week.

J. Lambert, H.G. Merriam

Biology 61.365 ★

Field Course

A course providing students with an opportunity for intensive, continuous study of living organisms under natural conditions. Credit is based on two weeks of full-time field work with attendant assignments, selected from several one- or two-week modules with various instructors. Costs of long-distance transportation (if applicable), room and board relating to the course are borne by the student. (Details may be obtained from the

co-ordinator.)

Prerequisites: At least one course in Biology beyond the 100 level, and permission of the co-ordinator. No more than one-half credit may be obtained from 61.365★.

Day division: All day, approximately six days a week, offered at different times during the year.

M.B. Fenton (co-ordinator)

Biology 61.370

The Flora and Fauna of Canada

An introduction to practical taxonomy and biogeography through field and laboratory study of representative Canadian plants and animals with emphasis on local forms. It is recommended that students make collections of plants and animals during the summer before the course is taken. Detailed directions may be obtained from the instructors.

Prerequisites: Biology 61.200, or 61.205 and 61.210.

Not offered 1975-76. Next offered 1976-77.

Biology 61.391★

Biology in Society

A seminar course dealing with selected areas of biological knowledge with direct relevance to social activities of man. Not available as a continuing Science course for students other than Biology Majors except with permission of the student's Major department.

Prerequisite: Biology 61.200 or permission of the instructor.

Evening division, First term: Seminar and discussion, three hours a week.

M.E. McCully

Biology 61.401★

Mycology

The morphology, evolution and biological importance of the fungi.

Prerequisite: Biology 61.200.

Not offered 1975-76. Next offered 1976-77.

Biology 61.405

Invertebrate Zoology

An advanced course on the classification, morphology, comparative physiology and evolution of invertebrate animals.

Prerequisites: Biology 61.215 and 61.204★.

Reference texts: Grassé, *Traité de Zoologie (appropriate volumes)*; Hyman, *The Invertebrates*.

Not offered 1975-76.

Biology 61.410

Plant Morphogenesis

A course dealing with the problems of plant development.

Prerequisites: Biology 61.200 and consent of the instructor. Enrolment limited.

Not offered 1975-76. Next offered 1976-77.

Biology 61.415

Chordate Zoology

An advanced course on the classification, geographic distribution and evolution of the major groups of chordates. As part of his practical work, each student must make a collection of chordates, preferably during the summer before the course is taken. Detailed directions may be obtained from the instructors.

Prerequisite: Biology 61.200.

Day division: Lectures two hours a week, laboratory four hours a week.

M.B. Fenton, D.A. Smith

Biology 61.417

Methods in Molecular Genetics

The scope and purpose of the course is to review and acquire some familiarity with the successful use of genetic techniques in the solution of problems in molecular biology. Emphasis will be on the laboratory which will be "unstructured" and on discussion of innovations in genetic techniques. The course will be suitable for students with a developing interest in problems of molecular and cellular biology and biochemistry.

Prerequisites: Biology 61.215 or equivalent and a course in Biochemistry or Microbiology.

Not offered 1975-76. Next offered 1976-77.

Biology 61.418

Population Genetics

A lecture and seminar course on both theoretical and experimental population genetics.

Prerequisite: Biology 61.215.

Day division: Lectures two hours a week; seminar and laboratory two hours a week.

G.R. Carmody

Biology 61.420

Cell Biology

A lecture, seminar and laboratory course dealing with the main cytological, cytochemical and physical methods used in cell biology and the processes and structures involved in replication, growth, development and function of cells and viruses. The laboratory will provide training in techniques of sectioning, staining, light microscopy, electron microscopy, autoradiography, photomicrography and cell fractionation. An attempt will be made to apply the techniques in a framework of individual projects. Students will be expected to present seminars and contribute to discussion groups.

Prerequisites: Biology 61.215, 61.220★ and 61.221★, or equivalent.

Day division: Lectures two hours a week, seminars and discussion one hour a week, laboratory six hours a week.

P.E. Lee, G. Setterfield

Biology 61.425

Plant Physiology

A lecture and laboratory course on the physiology and biochemistry of seed germination, growth and development in higher plants.

Prerequisites: Biology 61.325 ★ and Chemistry 65.220 or 65.222.

Day division: Lectures two hours a week, laboratory four hours a week.

F. Wightman

Biology 61.426 ★

Plant Metabolism I

A lecture and seminar course with emphasis on autotrophic metabolism of plants, including photosynthetic processes, nitrogen assimilation and sulphur reduction.

Prerequisites: Biology 61.325 ★ and Biochemistry 63.300 or Chemistry 65.220 or 65.222.

Not offered 1975-76. Next offered 1976-77.

Biology 61.427 ★

Plant Metabolism II

A lecture and seminar course of selected topics including: metabolic basis of physiological responses, regulatory mechanisms in plants, metabolic aspects of crop productivity.

Prerequisite: Biology 61.325 ★. Biochemistry 63.300 is recommended.

Not offered 1975-76. Next offered 1976-77.

Biology 61.435

Animal Physiology

A course dealing in some detail with advances made in particular areas of animal physiology.

Prerequisites: Biology 61.335 ★; Chemistry 65.220 or 65.222; Chemistry 65.210; and Physics 75.100 or 75.105; or permission of the instructor.

Day division: Lectures two hours a week, laboratory four hours a week.

D.R. Gardner

Biology 61.440

Taxonomy of the Flowering Plants

A general survey of the flowering plants, the bases for classification and the history of taxonomy. A project will be assigned.

Prerequisite: Biology 61.210 or 61.200.

Text: Lawrence, *Taxonomy of Vascular Plants*.

Day division: Lectures two hours a week, laboratory four hours a week.

I.L. Bayly

Biology 61.455

Animal Development

A lecture, seminar and laboratory course on the descriptive and experimental parameters of animal development.

Prerequisites: Biology 61.205 or 61.200, and permission of the instructor.

Text: Balinsky, *An Introduction to Embryology*.

Day division: Lectures three hours a week, laboratory four hours a week.

T.W. Betz

Biology 61.460

Insect Morphology

A course on the morphology of representatives of the more important orders and families of insects. This course is complementary to Biology 61.461, which is offered in alternate years.

Prerequisite: Biology 61.205 or 61.200.

Text: Duporte, *Manual of Insect Morphology*.

Reference Text: Snodgrass, *Principles of Insect Morphology*.

Day division: Lectures two hours a week, laboratory four hours a week.

H.H.J. Nesbitt

Biology 61.461

Principles of Systematic Entomology

A lecture and laboratory course devoted to the study of identification of insects and the principles of theoretical taxonomy. This course is complementary to Biology 61.460.

Prerequisite: Permission of the instructor.

Not offered 1975-76. Next offered 1976-77.

Biology 61.465

Quantitative Ecology

Quantitative and qualitative analyses of the distribution and abundance of plant and animal species and communities, and of related environmental phenomena.

Prerequisite: Biology 61.360. A course in elementary statistics is recommended.

Day division: Lectures two hours a week, laboratory four hours a week.

C.A. Barlow

Biology 61.469 ★

Evolutionary Concepts

Evolution as related to gene pools, isolation, speciation, natural selection, competition, dominance and distributional patterns; examples from North American biota are emphasized.

Prerequisite: Biology 61.200 or 61.360.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

H. Howden

Biology 61.471 ★

Evolution and Biogeography

A continuation of concepts developed in Biology 61.469 ★ and applied to world biotic patterns. Community evolution, tropical diversity and temporal stability are considered.

Prerequisite: Biology 61.469 ★.

Day division, Second term: Lectures two hours a week, laboratory four hours a week.

Biology 61.475

History of Biology

A seminar course on the history of biology and biological theory.

Prerequisites: Biology 61.215, a course in physiology at

least concurrently, and permission of the instructor.
Not offered 1975-76. Next offered 1976-77.

Biology 61.481★

Animal Behaviour

An advanced half course in the study of animal behaviour. Topics such as predator-prey interactions, mating behaviour, migration, mother-young interactions, social behaviour and inter- and intra-specific spacing behaviour will be interpreted in an ecological context. Lectures, seminars and laboratories will be used to achieve this coverage.

Prerequisites: Biology 61.335★ and 61.360 or suitable equivalents. Enrolment limited.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

M.B. Fenton

Biology 61.490

Directed Special Studies and Seminar

Day division: Annually, with permission of the Chairman.

Members of the Department

Biology 61.491★

Directed Special Studies

Day division, both terms: Annually, with permission of the Chairman.

Members of the Department

Biology 61.498

Research Project

Fourth year Honours students must carry out a research project under the supervision of a member of the Department. A report on the project must be submitted to the Supervisor by April 1, and each student will be examined on the project at an oral defense before a committee of the Department.

Day division: Laboratory average eight hours a week.

Courses Planned for Summer School and Evening Division 1975-78

Summer 1975

61.100, 61.101, 61.230★, 61.335★.

Evening Division 1975-76

61.190, 61.200, 61.204★, 61.391★.

Summer 1976

61.100, 61.101, 61.221★, 61.360.

Evening Division 1976-77

61.100, 61.101, 61.220★, 61.418.

Summer 1977

61.100, 61.101, 61.215, 61.250★.

Evening Division 1977-78

61.190, 61.469★, 61.471★

Department of Chemistry

Officers of Instruction

Chairman

J.W. ApSimon

Professors

C.H. Amberg
J.W. ApSimon
R.G. Barradas
J.M. Holmes
J.A. Koningstein
C.H. Langford
P.M. Laughton
D.R. Wiles

Associate Professors

C.L. Chakrabarti
P. Kruus
M. Parris
C.S. Tsai
D.C. Wigfield
R.H. Wightman

Assistant Professors

G.W. Buchanan
R.A. Shigeishi
J.S. Wright

Lecturer

I. Mary Valeriote

Adjunct Professors

H.J. Bernstein
E.J. Casey
O.E. Edwards
E.A. Flood
S.A. Narang
I.E. Puddington
I.C.P. Smith

Sessional Lecturer

Virginia Prince

General Information

Students intending to enter a program in Chemistry should have a strong background and interest in Mathematics and Physics. The three-year Major and four-year Honours programs in Chemistry are described below. Students interested in continuing their careers in secondary school teaching, graduate studies or as professional chemists are advised to enrol in the Honours program.

A Combined Honours program in Chemistry and Geology is available as described below.

While Combined Honours in Chemistry and Mathematics or Chemistry and Physics are not formally available, strong continuation groupings in Mathematics and/or Physics can be arranged under the Honours Chemistry program. Secondary specialization in Biology can be arranged under the Honours Chemistry program, or under the joint program in Honours Biochemistry.

Major Program

A total of ten courses is required for graduation after completion of the First year Science Faculty requirements. This program must be completed before continuation into Second year and must include Chemistry 65.100, Mathematics 69.100, Physics 65.100, and one other First year Science course.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.220, 65.250 and two full credits in Third year Chemistry including Chemistry 65.311★ or 65.310, and at least one of 65.315★, 65.325★ or 65.355★;
2. Mathematics 69.100 and 69.202 or approved equivalents;
3. Physics 75.100 and 75.230 or approved equivalents;
4. A First year Science course (as required in the First year program);
5. Two Arts electives (see Science Faculty regulations);
6. One Science course or other approved course chosen after consultation with the Department of Chemistry;
7. One free option.

It is recommended that candidates choose a course in French, German or Russian as one of their Arts electives.

Honours Program

A total of fifteen courses is required for the degree after completion of First year Science requirements. These requirements are the same as for the Major program except that, based on the results of an assessment test and permission of the Chairman of the Department, outstanding students may be allowed to take Chemistry 65.220 in the First year instead of Chemistry 65.100. However, the total number of courses required will remain unchanged.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.220, 65.250, 65.310; two of 65.315 ★, 65.325 ★ and 65.355 ★; one of 65.320 or 65.350 or Biochemistry 63.300, one full credit at the 400 level in Chemistry or Biochemistry and Chemistry 65.498;
2. Mathematics 69.100 and 69.202 or approved equivalent;
3. Physics 75.100 and 75.230 or approved equivalent;
4. A First year Science course (as required in the First year program);
5. Two Arts electives (see Science Faculty regulations);
6. Three Science or other approved courses;
7. One free option.

Each candidate for Honours is required to demonstrate a reading knowledge of one of scientific French, German or Russian.

Honours Project

Each Honours candidate is required, as part of Chemistry 65.498, in the final year to carry out a substantial project and to write a report to his supervisor. The report and its defence are heavily weighted in determining the class of Honours awarded. Towards the end of the Third year, prospective candidates should obtain pertinent information from the departmental office. Honours students are also expected to attend departmental seminars in their specialty.

Combined Honours in Chemistry and Geology

Program Adviser: C.H. Amberg

A total of fifteen courses is required for the degree after completion of the First year Science requirements. The First year program must include Chemistry 65.100, Geology 67.100, Mathematics 69.100 and Physics 75.100.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.250, 65.350 and one Chemistry credit at the 400 level;
2. Geology 67.100, 67.221 ★, 67.222 ★, 67.228 ★, 67.281 ★, 67.325 and one Geology credit at the 400 level;
3. Either Chemistry 65.498 or Geology 67.498. Students should consult their program adviser about selection of this in their Third year;

4. One Chemistry or Geology elective;
5. Mathematics 69.100 and 69.202;
6. Physics 75.100;
7. Two Science electives;
8. Two Arts electives;
9. One free option.

A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German or Russian.

Graduate Program

The Department of Chemistry offers studies leading to the degree of Master of Science and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Chemistry 65.010

Introductory Chemistry

An introductory course emphasizing the fundamental laws and principles of chemistry. The laboratory course is designed to teach fundamental techniques and to give familiarity with some physical and chemical properties of a selected group of substances.

Day division: Lectures three hours a week, laboratory three hours a week.

Chemistry 65.100

General Chemistry

Some models and theories of gases, solids, liquids and solutions; electronic structure of atoms; energy states and spectra; periodic properties of the elements; the structure of covalent and ionic substances; energy relationships and theories in bonding, equilibria, and rates of reactions. The laboratory course will give training in fundamental techniques and methods of experimental work in analysis, synthesis and other aspects of chemistry.

Prerequisites: Chemistry 65.010 and Mathematics 69.010, or equivalent. This course is intended for students in all programs who plan to take further chemistry courses.

Day division: Lectures three hours a week, laboratory three hours a week.

Chemistry 65.106

The Study of Matter and Energy

This course will examine our present understanding of the structure of matter and interactions of matter and energy. The fundamental scientific ideas will be examined for their implications for management of chemical resources for energy, manufacturing, and preservation of the natural environment. Social issues will be included in the discussion.

Primarily intended for students not enrolled in the Faculty of Science. This course may not be used to meet the requirements for an experimental science in First year Science nor to meet prerequisites for further study of Chemistry. It will assume prior experience in Chemistry to at least the Grade 12 level.

Day division: Lectures three hours a week.

Chemistry 65.210

Introductory Physical Chemistry

An introduction to thermodynamics and its application to problems of phase equilibria, chemical equilibria, surface chemistry, and electrochemistry. Principles of chemical dynamics and their application to analysis of reaction mechanisms.

Prerequisites: Chemistry 65.100 and Mathematics 69.100 or equivalent.

Day and Evening divisions: Lectures three hours a week, problems one hour a week, laboratory three hours a week.

Chemistry 65.220

Elementary Organic Chemistry

Structure, synthesis and reactions of the main functional groups with emphasis on aliphatic and simple aromatic systems. An introduction to bonding and mechanisms. The laboratory includes synthesis and characterization of the more important functions and an introduction to modern instrumentation.

Prerequisite: Chemistry 65.100.

Text: Morrison and Boyd, *Organic Chemistry, Third Edition*.

Day division: Lectures three hours a week, laboratory four hours a week.

Chemistry 65.222

Introductory Organic Chemistry

A course for non-chemistry Majors. An introduction to organic chemistry paralleling Chemistry 65.220 but with an introduction to, and emphasis on, the chemistry of biologically important compounds. Laboratory similar to Chemistry 65.220.

Prerequisite: Chemistry 65.100.

Text: Morrison and Boyd, *Organic Chemistry, Third Edition*.

Day division: Lectures three hours a week, laboratory four hours a week.

Chemistry 65.250

Elementary Inorganic and Analytical Chemistry

The chemical principles underlying gravimetric, titrimetric, and instrumental analysis; atomic structure, bonding, molecular and crystal structure; acid-base, coordination complex, and oxidation-reduction systems; solubility, and crystallization; ionic solutions; chemistry of non-transition elements. Laboratory work in classical and instrumental analysis.

Prerequisites: Chemistry 65.100, Mathematics 69.100 or equivalent.

Texts: Phillips and Williams, *Inorganic Chemistry, Volume 1*; Skoog and West, *Fundamentals of Analytical Chemistry*.

Day division: Lectures three hours a week, laboratory four hours a week.

Chemistry 65.301★

Experimental Chemistry

An integrated laboratory-based course designed to acquaint students with advanced concepts and techniques required to study. Students will be responsible for literature surveys, acquisition of the theoretical background and mathematical analysis of data.

Prerequisites: Chemistry 65.210 and at least one of Chemistry 65.220, 65.222 or 65.250. A Third year level Chemistry course must be taken as a pre- or co-requisite.

Day division, both terms: Laboratory and seminars five hours a week.

Chemistry 65.310

Physical Chemistry

An introduction to quantum mechanics, and its use in explaining atomic and molecular structure and spectra; introduction to statistical mechanics and its application to simple systems; theories of chemical kinetics with applications.

Prerequisites: Chemistry 65.210, Mathematics 69.202 or equivalent.

Day division: Lectures and problems four hours a week.

Chemistry 65.311★

Quantum Chemistry

Introduction to quantum theory, with emphasis on chemical applications. Wave functions, energy states, atomic orbitals, origins of chemical bonding, vibrational and electronic spectra, hybridization and molecular structure, symmetry, Hückel theory of conjugated molecules.

Prerequisites: Chemistry 65.210, Mathematics 69.202 or equivalent.

Day division, First term: Lectures and problems three hours a week.

Chemistry 65.315★

Experimental Physical Chemistry

A laboratory-based course designed to acquaint students with advanced concepts in physical chemistry and the use of more advanced physico-chemical techniques in other areas of chemistry. Students will be

responsible for literature surveys, acquisition of theoretical background, design of experimental procedures and mathematical analysis of data.

Prerequisites: Chemistry 65.210 and at least one of 65.220 and 65.250. Prerequisites or Co-requisites: Chemistry 65.310 or 65.311 ★.

Day division, both terms: Laboratory and seminars five hours a week.

Chemistry 65.320

Intermediate Organic Chemistry

Resonance and aromaticity, structure reactivity relationships and conformational analysis; spectroscopy and its applications; selected reactions with emphasis on mechanistic rationale and synthetic usefulness; special topics, e.g. radicals, polymers, heterocyclics.

Prerequisite: Chemistry 65.220 or 65.222.

Text: Hendrickson, Cram and Hammond, *Organic Chemistry, Third Edition*.

Day division: Lectures three hours a week.

Chemistry 65.325 ★

Experimental Organic Chemistry

A laboratory-based course including advanced concepts and techniques in organic synthesis, structure determination, and the rates and mechanisms of reactions. Students will be responsible for literature surveys, acquisition of theoretical background, and design of experimental procedures.

Prerequisites: Chemistry 65.210 and either 65.220 or 65.222.

Prerequisites or Co-requisites: Chemistry 65.320 or Biochemistry 63.300 or permission of the instructor.

Day division, both terms: Laboratory and seminars five hours a week.

Chemistry 65.350

Intermediate Inorganic Chemistry

Introduction to radioactivity and its chemical applications. Chemistry of transition metals: electronic configuration, structures, properties and reaction mechanisms. Structures of metals and semiconducting compounds. Chemical metallurgy.

Prerequisites: Chemistry 65.210 and 65.250.

Day division: Lectures three hours a week.

Chemistry 65.355 ★

Experimental Inorganic and Analytical Chemistry

A laboratory-based course including advanced concepts and techniques in inorganic synthesis, structure determination, and analytical chemistry. Students will be responsible for literature surveys, acquisition of theoretical background, design of experimental procedures and mathematical analysis of data.

Prerequisites: Chemistry 65.210 and 65.250.

Prerequisites or Co-requisites: Chemistry 65.350 or permission of the instructor.

Day division, both terms: Laboratory and seminars five hours a week.

Chemistry 65.410 ★

Introduction to Quantum Chemistry

Theory of wave functions and energy levels of simple and more complicated atoms and molecules. The variation method and molecular orbital calculations and aspects of group theory.

Prerequisite: Chemistry 65.310, or permission of the instructor.

Day division, First term: Lectures and seminars three hours a week.

Chemistry 65.411 ★

Advanced Calculations in Physical Chemistry

A course reviewing and extending the concepts covered in Chemistry 65.210 and 65.310 by applying these concepts to more advanced, practically oriented problems. The emphasis will be on problems involving thermodynamics, statistical mechanics and kinetics.

Prerequisites: Chemistry 65.310 or permission of the instructor.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.412 ★

Chemical Kinetics

Theories of rates of chemical reaction with application to elementary gas and solution reactions. Complex reactions in gases, solutions and on surfaces.

Prerequisite: Chemistry 65.310, or permission of the instructor.

Not offered 1975-76.

Chemistry 65.413 ★

Colloid and Surface Chemistry

Properties and stability of colloidal systems, theories of adsorption, heterogeneous catalysis, and interfacial phenomena.

Prerequisite: Chemistry 65.210 or permission of the instructor.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.420 ★

Physical Organic Chemistry

Hückel molecular orbital calculations. Woodward-Hoffmann rules. Experimental methods for determining reaction mechanisms. Linear free energy relationships. Mechanism problem solving.

Prerequisite: Chemistry 65.320.

Day division, First term: Lectures and discussions three hours a week.

Chemistry 65.422 ★

Structural Organic Chemistry

Methods of structural elucidation of complex organic molecules. Topics to include the use of instrumental methods, stereochemistry and conformational analysis.

Prerequisites: Chemistry 65.320 or permission of the

instructor.

Day division, First term: Lectures and seminars three hours a week.

Chemistry 65.423 ★

Synthetic Organic Chemistry

The application of reactions to the synthesis of organic molecules. Emphasis on design of sequence, new reagents and stereoselectivity.

Prerequisite: Chemistry 65.320, or permission of the instructor.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.430 ★

Electroanalytical Chemistry

Properties of ionic solutions, electrode processes, theory and application of electroanalytical techniques and reactions.

Prerequisites: Chemistry 65.250, 65.310 or permission of the instructor.

Day division, First term: Lectures and seminars three hours a week.

Chemistry 65.431 ★

Instrumental Methods of Analysis

Selected topics from: Atomic and molecular absorption spectroscopy. Emission spectroscopy. X-ray methods. Mass spectrometry. Differential migration methods: solvent extraction, ion exchange, chromatography.

Prerequisites: Chemistry 65.210, 65.250, or permission of the instructor.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.450 ★

Applications of Ligand Field Theory

Introduction to quantitative crystal field theory; the weak field approximation and application to heats of ligation; the strong field approximation and application to spectra and magnetism.

Prerequisites: Chemistry 65.310 and 65.350.

Day division, Second term: Lectures three hours a week.

Chemistry 65.451 ★

Thermodynamic Aspects of Inorganic Chemistry

The course will treat topics in solid state chemistry, high temperature chemistry, and solution chemistry that are especially susceptible to thermodynamic analysis. Applications in metallurgy and mineralogy will receive attention.

Prerequisite: Chemistry 65.350.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.452 ★

Radiochemistry

A study of nuclear stability and decay; chemical studies of nuclear phenomena. Selected laboratory experiments

are optional.

Prerequisite: Chemistry 65.350, or permission of the instructor.

Reference text: Friedlander, Kennedy, and Miller, *Nuclear and Radiochemistry*.

Day division, First term: Lectures and seminars three hours a week.

Chemistry 65.498

Research project and Seminar

Senior students in Honours Chemistry will carry out a research project under the direction of one of the members of the Department. A written report and an oral presentation of the work are required before a grade can be assigned.

Day division, Annually: Laboratory and associated work at least eight hours a week.

Courses Planned for Summer School and Evening Division 1975-77

Summer 1975

65.100, 65.320, 65.432 ★.

Evening Division 1975-76

65.100, 65.250, 65.411 ★, 65.412 ★, 65.420 ★, 65.431 ★.

Summer 1976

65.100, 65.311 ★.

Evening Division 1976-77

65.220, 65.450 ★, 65.452.

Honours Program

The Bachelor of Science Honours program in Physical Geography is designed to give the student an understanding of the earth's surface as man's physical environment. The student will specialize in the study of properties and processes of the earth's surface materials and atmosphere and the interactions between these.

The program consists of twenty courses beyond Senior Matriculation or Qualifying University year Science, selected in a pattern approved by an appropriate adviser in the Geography Department, and consistent with the following requirements.

1. The First year of the program will be consistent with Science Faculty requirements for First year Science, and will include:

Mathematics 69.100 or 69.101

Chemistry 65.100

Geology 67.100

One of Biology 61.100 or Physics 75.100

Geography 45.101 will be taken as an Arts option.

2. The program will contain eight full courses in Geography beyond Geography 45.101, including the Honours Research Essay 45.498 which should be taken in the final year.

3. Seven full courses to be taken must be selected from the list below and should include Geography 45.210, 45.308, 45.312, and 45.345. In special cases students may take an appropriate graduate course (for example, Geography 45.515 Glaciology) in their final year.

Geography

45.210 Physical Geography

45.303 ★ Quantitative Geography

45.308 Geography of Soils

45.312 Geomorphology

45.325 Cartography

45.345 Climatology

45.402 ★ Problems in Physical Geography

45.411 ★ Quaternary Geography

45.412 ★ Terrain Analysis

45.413 ★ Hydroclimatology

45.414 ★ Micrometeorology

45.415 ★ Slope Development: Forms, Processes and Stability

45.416 ★ Engineering Geomorphology

45.417 ★ Glacial Geomorphology

45.424 ★ Soil Mechanics

Physics

75.100 (required course in the Second year of the program if not taken in First year)

Mathematics

69.257 ★ or 69.258 ★

Geology

67.234 ★ and 67.281 ★

4. The remaining seven courses must include:

(a) Two approved courses in Science, not in Geography, beyond First year level;

(b) Two approved courses in Science, Computing Science or Engineering;

(c) Two Arts electives, one of which must be an approved course, not in Geography;

(d) One free elective.

Details of individual course offerings are presented in the Department of Geography submission in the Faculty of Arts section of the calendar.

Department of Geology

Officers of Instruction

Chairman

J.M. Moore, Jr.

Professors

G.Y. Chao
J.A. Donaldson
P.A. Hill
F.K. North
W.M. Tupper

Associate Professors

K. Bell
R.L. Brown
K. Hooper
J.M. Moore, Jr.
G.B. Skippen
D.H. Watkinson
R.W. Yole

Assistant Professor

G. Ranalli

Special Lecturers

R.W. Boyle
E. Irving

Sessional Lecturers

R.L. Borden
A.D. Stanley
R.W. Stemp

Major Program

The B.Sc. program in Geology is of *four* years duration beyond Senior Matriculation or Qualifying University year. A total of twenty courses is required as follows:

1. The course requirements of the First year of the general B.Sc. program (p. 323).

2. At least ten courses in Geology, of which Geology 67.100, 67.221★, 67.222★, 67.228★, 67.281★, 67.235, 67.325, 67.335, and 67.385 are mandatory. (Geology 67.100 may be taken either in Qualifying or First year.) Students intending to Major in Geology should take Geology 67.100 rather than Geology 67.111★ and 67.112★.

3. At least six courses in the other sciences. Among these, Mathematics 69.100 or 69.101 and Chemistry 65.100 are mandatory, and at least two First year Science or Mathematics courses must be passed before registration for Second year Geology courses will be permitted.

4. Two approved courses in the Faculty of Arts.

5. Two courses chosen from Science, Arts or Engineering.

A three-year program for students not intending to become professional geologists is also available. Requirements are the same as for the B.Sc. program outlined above, except that no courses above the 300 series are required, and the total courses will number fifteen, including seven Geology courses, at least five Science courses outside of Geology, which must include Mathematics 69.100 or 69.101 and Chemistry 65.100, two Arts courses and one optional course.

A typical program is as follows:

First Year

Geology 67.100*
Chemistry 65.100
Physics 75.100 or 75.105 or Biology 61.100 or 61.101
Mathematics 69.100 or 69.101.
Arts elective
(*May be replaced by another Science course if taken in Qualifying University year.)

Second Year

Geology 67.221★, 67.281★, 67.222★, 67.228★ and 67.235
One First or Second year Science course
One Arts elective
Field camp

Third Year

Geology 67.325, 67.335 and 67.385
Second year Science course
One elective (Arts, Science or Engineering)

Fourth Year

Three Geology courses at the 400 level
One Second year Science course
One elective (Arts, Science or Engineering)

Notes

1. A working knowledge of elementary Biology is required for Geology 67.235 and 67.335. This requirement may be fulfilled by credit for Grade 13 Biology, Biology 61.100, or 61.101, or by arrangement with the instructor for extra reading assignments in Geology 67.235.

2. Certain courses in the 200 and 300 series may be arranged in groups of half-course credits for non-Geology Majors in consultation with the department.

3. All Major and Honours students should note that their selection of Science courses, including Mathematics, should be made with the prerequisites for subsequent Geology courses in mind.

Honours Programs

University requirements concerning Honours standing must be maintained. (See pp. 58, 324.)

Honours in Geology

1. Courses as prescribed for the Major program are required, except that Geology 67.498 (Thesis) is one of the mandatory courses in Geology, and a course in Mathematics beyond First year level (which may include Science 60.200 ★) is mandatory in the group of six courses required in other sciences.

2. The departmental language requirement must be met during the Third year by passing a formal course in, or demonstrating reading proficiency in a language other than English and preferably French.

Combined Honours in Biology and Geology

Program adviser is K. Hooper.

Students desiring a comprehensive basic training in both Biology and Geology may apply for admission to a Combined Honours program, on completion of the First year of the Science program. Applicants must be of Honours standing and must have achieved grades of C– or better in both Biology 61.100 and Geology 67.100.

Course requirements of the Combined Honours program are as below.

1. Biology 61.100, Chemistry 65.100, Geology 67.100, Mathematics 69.100 or 69.101, Physics 75.100 or 75.105.

2. Ten courses in Biology (or Biochemistry) and Geology beyond First year level, including at least one course or half-course involving a field camp. Not more than six courses in this group should be taken in one department, and not more than five may be courses numbered for any one university year.

3. Biology 61.498 or Geology 67.498.

4. One half-course in Statistics in the Faculty of Science (Mathematics 69.258 ★ is recommended) and one half-course in Computing Science (Science 60.200 ★ is recommended).

5. Three optional courses, at least two of which must be acceptable courses in the Faculty of Arts.

6. A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German or Russian.

Combined Honours in Physics and Geology

Program advisers are G. Ranalli and M.K. Sundaresan.

A grade of C– or better in both Geology 67.100 and Physics 75.100 and overall Honours standing is required before admittance to the program. Course requirements are as follows:

First Year

Physics 75.100
Geology 67.100
Mathematics 69.100
Chemistry 65.100
One Arts elective

Second Year

Physics 75.211 ★, 75.222 ★, 75.232 ★ and 75.241 ★
Geology 67.221 ★, 67.222 ★, 67.228 ★ and 67.281 ★
Mathematics 69.202
Field camp

Third Year

Physics 75.300, 75.361 ★ and 75.362 ★
Geology 67.325 and 67.385
One optional course

Fourth Year

Physics 75.338 ★
One half-credit Physics course at the 400 level
Geology 67.481 ★
One half-credit Geology course at the 400 level
Physics 75.499 or Geology 67.498
One Arts elective
One optional course

A reading proficiency in French, German or Russian must be demonstrated in the Third year. Thesis must be presented and defended orally before an interdepartmental committee.

Combined Honours in Chemistry and Geology

Program adviser is G.B. Skippen.

A grade of C– or better in both Chemistry 65.100 and Geology 67.100 and overall Honours standing are required for admittance to the program. Course requirements are as follows:

First Year

Chemistry 65.100
Geology 67.100
Mathematics 69.100
Physics 75.100
One Arts elective

Second Year

Chemistry 65.210 and 65.250
Geology 67.221★, 67.222★, 67.228★ and 67.281★
Mathematics 69.202

Third Year

Chemistry 65.350
Geology 67.325
One Chemistry or Geology option
One Science elective
One Arts elective

Fourth Year

Chemistry 65.498 or Geology 67.498
One Chemistry course at the 400 level
One Geology course at the 400 level
One Science elective
One open elective

A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German or Russian.

Graduate Courses

For information on graduate courses, please consult the Graduate Studies and Research Calendar.

Courses Offered

Note: In the following listing, full courses end in '0' or '5'. The symbol ★ follows all half-courses.

Geology 67.100 General Geology

The Earth as a planet, minerals, rocks, geological structures, resource geology, geological time, the development of the North American continent, the history of life. Reference texts: Gilluly, Waters and Woodford, *Principles of Geology, Third Edition*; Clarke and Stearn, *Geological Evolution of the North American Continent*. Non-science, non-engineering students who wish to take only one introductory course in geology are encouraged to take 67.111★ and 67.112★. Day division: Lectures two hours a week, tutorial one

hour a week, laboratory three hours a week, one or two field excursions during laboratory periods in the First term.

F.K. North, G. Ranalli, G.B. Skippen, R.W. Yole
Evening division: Lectures and laboratory five hours a week, two half day field trips in the First term.
P.A. Hill

Geology 67.101★

Introductory Geology for Engineers

Fundamentals of geology with emphasis on engineering aspects. This course open only to students in the Engineering Faculty.

Day division, First term: Lectures two hours a week, laboratory three hours alternate weeks, two field excursions.

W.M. Tupper

Geology 67.111★

Geology, the Environment and Man I

The Earth, man's habitat. Its formation and development. Processes shaping the environment. Earth materials.

Text: Longwell, Flint, Sanders, *Physical Geology*.

Reference text: Holmes, *Principles of Physical Geology*

Day division, First term: Lectures two hours a week, laboratories, seminars and field trips three hours a week.

P.A. Hill

Geology 67.112★

Geology, the Environment and Man II

Earth resources. Conservation. Urban geology. Water supply. Geological hazards: prediction, prevention. Artificial openings and slopes. Pollution. Trace elements. Reclamation geology.

Prerequisite: Geology 67.100 or 67.101★ or 67.111★.

Day division, Second term: Lectures two hours a week, laboratories, seminars and field trips three hours a week.

P.A. Hill

Geology 67.202★

Non-Renewable Primary Resources

Occurrence of metallic and non-metallic minerals, fossil fuels and construction materials. Energy resources. Resources of the oceans. Resource planning and management. Special emphasis on Canadian problems. Course restricted to students not majoring in Geology.

Reference texts: Skinner, *Earth Resources*; Landsberg, *Resources in America's Future*; G.S.C., *Geology and Economic Minerals of Canada, Fifth Edition*.

Day division, Second term: Lectures two hours a week, laboratory three hours alternate weeks.

J.M. Moore, F.K. North

Geology 67.221★

Crystallography and Optical Mineralogy

Morphological study and classification of crystals, principles of optical crystallography.

Prerequisite: Geology 67.100 or 67.112★ or 67.101★.

Day division, First term: Lectures two hours a week,

tutorial one hour a week, laboratory three hours a week.
G.Y. Chao

Geology 67.222 ★

Mineralogy

Introduction to crystal chemistry, X-ray techniques, physical mineralogy and systematic mineralogy.

Prerequisite: Geology 67.100 or 67.112 ★ or 67.101 ★ or 67.221 ★.

Texts: Mason and Berry, *Elements of Mineralogy*; Deer, Howie and Zussman, *Introduction to the Rock-forming Minerals*.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

G.Y. Chao

Geology 67.228 ★

Petrology I

Introduction to the study of rocks by petrographic, geochemical and isotopic techniques.

Prerequisite: Geology 67.100 and 67.221 ★.

Text: Heinrich, *Microscopic Identification of Minerals*.

Reference texts: Krauskopf, *Introduction to Geochemistry*; Harker, *Petrology for Students*; Faul, *Ages of Rocks, Planets and Stars*.

Day division, Second term: Lectures two hours a week, tutorial one hour a week, laboratory three hours a week.

G.B. Skippen

Geology 67.235

Palaeontology and Stratigraphy I

(May be taken as Geology 67.233 ★ **Palaeontology I** or Geology 67.234 ★ **Stratigraphy I** for half course credit by non-Geology Majors.)

The principles of palaeontology and palaeoecology, a general account of organic evolution as demonstrated by the main groups of invertebrate and vertebrate fossils, human palaeontology, principles of stratigraphy and sedimentology, geological framework of Canada.

Prerequisite: Geology 67.100 or 67.112 ★.

Texts: Black, *The Elements of Palaeontology*; Matthews, *Dynamic Stratigraphy*.

Reference text: Douglas (Ed.), *Geology and Economic Minerals of Canada*.

Day division: Lectures two hours a week, laboratory three hours a week.

K. Hooper, R.W. Yole

Geology 67.281 ★

Field Geology I

Basic geological and geophysical methods applied to the field study of rocks. A mandatory 14-day field camp starting on September 2. Cost of long distance transportation (if applicable) and room and board relating to the field camp are borne by the student.

Prerequisite: Geology 67.100 or 67.112 ★.

Texts: Billings, *Structural Geology, Third Edition*; Compton, *Manual of Field Geology*; Griffiths and King, *Applied Geophysics for Engineers and Geologists*.

Reference texts: Holmes, *Principles of Physical Geology*;

Miller, *Photogeology*; Lattman and Ray, *Aerial Photographs in Field Geology*.

Day division, First term: Field camp, plus laboratory three hours a week.

K. Bell, J.A. Donaldson, F.K. North, W.M. Tupper, D.H. Watkinson

Geology 67.312 ★

Applied Environmental Geology

Geology in: land use analysis, urban development, foundation design, highway construction, underground transportation, slope stability, subsidence, reclamation, environmental geochemistry, pollution, waste disposal, flood control, resource use and management, the law.

Prerequisites: Open only to Third and Fourth year students in Engineering and Science who have completed Geology 67.100, 67.101 ★ or 67.112 ★.

Day division, Second term: Lectures and laboratories five hours a week.

P.A. Hill and others

Geology 67.325

Petrology and Mineral Deposits

(May be taken as 67.323 ★ **Petrology** or 67.324 ★ **Mineral Deposits**.)

Petrology of igneous and metamorphic rocks; ore deposits, economic geology, applied geochemistry and groundwater geology.

Prerequisites: Geology 67.221 ★, 67.222 ★, 67.228 ★ and Chemistry 65.100.

Texts: Hyndman, *Petrology of Igneous and Metamorphic Rocks*; Park and MacDiarmid, *Ore Deposits*.

Reference texts: Bates, *Geology of Industrial Rocks and Minerals*; Gass et al, *Understanding the Earth*; McDivitt, *Minerals and Men*; Verhoogen et al, *The Earth*; Williams, Turner and Gilbert, *Petrography*.

Day division: Lectures two hours a week, laboratory three hours a week.

J.M. Moore, W.M. Tupper

Geology 67.335

Palaeontology and Stratigraphy II

(May be taken as Geology 67.333 ★ **Palaeontology II** or Geology 67.334 ★ **Stratigraphy II** for half course credit by non-Geology Majors.)

A more advanced treatment of invertebrate fossils, palaeoecology, plant fossils; stratigraphic analysis; sedimentary tectonics; paleogeography; systematic historical geology.

Prerequisite: Geology 67.235.

Text: Dott and Batten, *Evolution of the Earth*.

Reference text: Matthews, *Dynamic Stratigraphy*; Douglas (Ed.), *Geology and Economic Minerals of Canada*.

Day division: Lectures two hours a week, laboratory three hours a week.

K. Hooper, R.W. Yole

Geology 67.385

Structure and Geophysics

The geometry of the earth's crust interpreted in the light of mechanical principles of deformation, geodynamics and global geophysics; geophysical fields; structural analysis of metamorphic tectonites; tectonic synthesis.

Prerequisite: Geology 67.281★.

Text: Verhoogen, et al, *The Earth*.

Reference texts: Bott, *The Interior of the Earth*; Cox, *Plate Tectonics and Geomagnetic Reversals*.

Day division: Lectures two hours a week, laboratory three hours a week.

R.L. Brown, G. Ranalli

Geology 67.415★

Quaternary Geography

Offered as Geography 45.411★.

Geology 67.417★

Soil Mechanics

Offered as Engineering 82.424★.

Geology 67.418★

Engineering Geomorphology

Offered as Geography 45.416★.

Geology 67.419★

Hydrology

Offered as Engineering 82.331.

Geology 67.421★

Metallic Mineral Deposits

Ore deposits studied from their relationships to the petrologic cycle. Ore genesis interpreted in light of field studies of local deposits, reflected light microscopy of ore suites, description of classic deposits, phase equilibria and isotopic evidence.

Prerequisite: Geology 67.324★.

Text: Stanton, *Ore Petrology*.

Day division, First term: Lectures, seminars and laboratories five hours a week.

D.H. Watkinson

Geology 67.423★

Petroleum Geology

The origin and occurrence of oil and natural gas; oil exploration and production; petroleum provinces.

Prerequisite: Geology 67.335.

Reference text: Levorsen, *Geology of Petroleum, Second Edition*.

Evening division, First term: Lectures, seminars and laboratories, three hours a week.

F.K. North

Geology 67.427★

The Geology and Application of Coal

The origin, structure, petrography and terminology of coal. Coal fields of North America with special reference to Canada. The evaluation, analysis, testing and application of coals. Extraction, utilization and beneficiation.

Pollution. Economics.

Prerequisite: Geology 67.325 or equivalent.

Evening division, First term: Combined lectures and laboratory, five hours a week.

P.A. Hill, B.W. Nandi (Co-ordinators)

Geology 67.428★

Property Valuation and Mineral Economics

Sampling, ore calculations, drilling and mining methods, property valuation, economics of specific mineral industries, national and international trade and mineral policies, taxation and financing of the mineral industry.

Prerequisites: Geology 67.325 and Economics 43.100, and permission of the instructor.

Texts: Parks, *Examination and Valuation of Mineral Property*; USBM, *Mineral Facts and Problems*; AIMME, *Economics of the Mineral Industries*.

Not offered 1975-76.

Geology 67.431★

Applied Micropalaeontology

Introduction to microfossils; kinds of microfossils, their evolution, biostratigraphic and paleoecologic significance and economic use; local, regional and world-wide correlation in petroleum and exploration geology. Laboratory: Examination and identification of microfossils. The student is required to give one seminar.

Prerequisites: Geology 67.235 and permission of the instructor.

Reference texts: Cushman, *Foraminifera: Their Classification and Economic Use*; Glaessner, *Principles of Micropalaeontology*.

Not offered 1975-76.

Geology 67.442★

Advanced Structure

Analysis of strain in the earth's crust, experimental rock deformation, model studies, and applications of experimental and theoretical data to solution of field problems. Prerequisite: Geology 67.385.

Text: Ramsay, *Folding and Fracturing of Rocks*.

Day division, Second term: Lectures, seminars and laboratories five hours a week.

R.L. Brown

Geology 67.451★

Metamorphic Petrology

Field relations of metamorphic rocks; graphical treatment and interpretation of mineral assemblages. Laboratory: Petrographic techniques, study of suites; graphical and numerical problems. Field trips.

Prerequisite: Geology 67.325

Text: Winkler, *Petrogenesis of Metamorphic Rocks, Third Edition*.

Reference text: Miyashiro, *Evolution of Metamorphic Belts*.

Day division, Second term: Seminars and laboratory five hours a week.

J.M. Moore

Geology 67.452 ★**Igneous Petrology**

Genesis of plutonic and volcanic rocks, their spatial and petrochemical relationships and crust-mantle differentiation; associated problems in phase equilibria and isotopic studies.

Prerequisite: Geology 67.325.

Not offered 1975-76.

Geology 67.463 ★**Sedimentology**

Review of sedimentary processes. Composition, texture, primary structure and origin of the major sedimentary rock types; dispersal patterns, sedimentary trends, and lithofacies. Laboratory: textural analyses, heavy minerals, statistical analysis of data, and thin-section petrography.

Prerequisite: Geology 67.325 or 67.335.

Text: Selley, *Ancient Sedimentary Environments*.

Reference texts: Milner, *Sedimentary Petrography*; Pettijohn, Potter, and Siever, *Sand and Sandstones*; Bathurst, *Carbonate Rocks and their Diagenesis*.

Day division, First term: Lectures and laboratory five hours a week.

J.A. Donaldson

Geology 67.464 ★**Precambrian Geology**

Introduction to problems of the Precambrian, emphasizing both classical and current North American studies. Laboratory: research methods, field trips, petrologic studies of representative rock suites.

Prerequisites: Geology 67.325 and permission of the instructor.

Reference text: G.S.C., *Geology and Economic Minerals of Canada, Fifth Edition*.

Not offered 1975-76.

Geology 67.481 ★**Physics of the Earth**

The physical properties of the solid earth. Gravitational, magnetic and palaeomagnetic fields; seismology and earthquake occurrence; heat flow and thermal history. Geodynamic processes.

Prerequisites: Geology 67.325 and 67.385, or permission of the instructor.

Text: Garland, *Introduction to Geophysics*.

Reference texts: Cox, *Plate Tectonics and Geomagnetic Reversals*; Strangway, *History of the Earth's Magnetic Field*.

Day division, Second term: Lectures and laboratories five hours a week.

G. Ranalli (*E. Irving on Palaeomagnetism*)

Geology 67.482 ★**Geochemistry and Isotope Geology**

Chemical evolution of the earth, meteoritics, development of the continental crust, origin of the atmosphere and hydrosphere, radiometric dating, stable isotopes, origin of life.

Prerequisite: Geology 67.325 or permission of the instructor.

Texts: Ahrens, *Distribution of the Elements in our Planet*; Faul, *Ages of Rocks, Planets and Stars*; Hoefs, *Stable Isotope Geochemistry*; Wood, *Meteorites and the Origin of Planets*.

Day division, Second term: Lectures and seminars five hours a week.

K. Bell

Geology 67.483 ★**Applied Geochemistry**

Chemical and physical factors responsible for the distribution and migration of the elements in the lithosphere, hydrosphere, atmosphere and biosphere; geochemistry applied to mineral exploration; methods of analysis. Laboratory: determination of trace amounts of the common metallic elements in soils and stream sediments; case histories, research problems. Field trips.

Prerequisites: Geology 67.100 or 67.112 ★, and 67.228 ★, Chemistry 65.100.

Text: Levinson, *Introduction to Exploration Geochemistry*.

Reference text: Hawkes and Webb, *Geochemistry in Mineral Exploration*.

Day division, First term: Combined lectures and laboratory five hours a week.

W.M. Tupper

Geology 67.484 ★**Exploration Geophysics**

An introduction to the fundamental theory and application of geophysics to economic and structural geology. Methods studied are electrical, gravitational, magnetic, radioactive and seismic. Case history studies integrate the application of the methods.

Prerequisite: Physics 75.100 or 75.105, or permission of the instructor.

Text: Dobrin, *Introduction to Geophysical Prospecting, Second Edition*.

Reference texts: Jakosky, *Exploration Geophysics*; Parasnis, *Principles of Applied Geophysics*.

Day division, Second term: Lectures and laboratory four hours a week.

R.W. Stemp

Geology 67.487 ★**Field Geology II**

This course, which includes a two-week field camp, is designed to develop the student's ability to observe, analyse and interpret geological field data in the light of theoretical and experimental knowledge. During the term directed laboratory and/or field studies may be required. A written report including maps, sections and diagrams is to be submitted and defended in an oral examination before November 1. Location 1975: Kaladar Area, Grenville Province. Field camp: May.

Prerequisite: Completion of the Geology core program

or its equivalent.
Day division, First term.
R.L. Brown, J.M. Moore

Geology 67.498

Honours Thesis

The B.Sc. thesis is to be based on a nonconfidential problem, undertaken either during the summer under adequate supervision, or during the University year in the Ottawa area under the supervision of the student's adviser. Thesis to be defended orally. Equivalent to one full course with an average of eight hours work a week.
K. Bell (co-ordinator)

Courses Planned for Summer School and Evening Division, 1975-79

Evening Division 1975-76

67.100.

Summer 1976

67.100.

Evening Division 1976-77

67.100.

Summer 1977

Not available.

Evening Division 1977-78

67.100.

Summer 1978

67.100.

Evening Division 1978-79

67.100.

Members of the Committee

Chairman

C.H. Langford

Committee

K. Bell (*Geology*)

E. Hughes (*Mathematics*)

J. Kelly (*Psychology*)

J. Lambert (*Biology*)

R. Morrison (*Physics*)

J. Neilson (*Engineering*)

P. Williams (*Geography*)

General Information

The committee arranges programs of integrated science studies designed for those students who wish to develop an understanding of Science and at the same time to develop an area of interest in the Humanities, Social Sciences or Engineering. The programs require that students go into an area of Mathematics, Physical Sciences, Environmental Sciences, Behavioural Sciences or Life Sciences to sufficient depth to have an understanding of its workings and significance. In the parallel studies outside the Faculty of Science, patterns of courses must be selected which give the student similar understanding. The Third year includes an interdisciplinary course. The program for each student is developed individually in consultation with the advisers of the committee who will continue to supervise the progress of the student. An Honours program of integrated science studies is available under the supervision of the committee. Further information may be obtained from the Chairman.

Course Requirements

First Year

The First year program consists of five courses approved for a First year Science program including (a) Mathematics 69.100. For those students whose major Science interests will be in Biology or Geology, Mathematics 69.101 with a mark of C- or better will be acceptable; (b) an experimental Science course chosen from Biology, Chemistry, Geology, Physics; (c) an Arts elective; (d) two courses from Science, Mathematics, Arts or Engineering.

In establishing their First year program, students should consult with the Chairman of the Integrated Science Studies program or a member of the committee to ensure that they register for appropriate courses.

Major Program

Although programs are planned and approved on an individual basis, the general framework of regulations is specified. Candidates in integrated science studies programs organized under the committee will ordinarily take a total of fifteen courses, of which at least eight shall be selected from those offered in the Faculty of Science. At least six courses shall be selected above the 100 level in the Faculty of Science, including Integrated Science 300 and at least two more courses in the Faculty of Science at the 300 or 400 level.

These courses, and their prerequisites, will be designated the Science sequence. The course pattern will also include a non-Science area of at least three courses from outside the Faculty of Science to provide a subsidiary specialization. At least two courses must be selected from the Faculty of Arts. No more than seven courses are to be selected at the 100 level. Essays or special projects may be required, to be submitted to an adviser or the Chairman of the committee before April 1 in the Second year.

Honours Program

Programs must meet usual grade point and credit standards for Honours (see p. 324). After First year Science, they must include nine Science courses above First year, including Integrated Science 60.498 (Honours research), Integrated Science 60.300 (seminar in integrated science studies), and four other Science courses from advanced (Third and Fourth year) offerings. Normally, at least one 400-level course apart from 60.498 will be included. These courses will be designated the Science sequence. Additionally, the program must include a pattern of interrelated non-Science courses for a total of four credits.

Graduation

To qualify for graduation a student must meet normal Science faculty requirements and have averages of C- or better in *both* the courses of his Science sequence and the courses in his non-Science sequence. Also, the last five courses taken for credit should include at least one from each of his Science and non-Science sequences.

To meet the requirements for the C- average in the Science and non-Science sequences stated above, only those courses in the sequences necessary to make up the required total for graduation need be counted. All obligatory courses must be counted. Students who have a B+ average in the courses counted toward graduation and who are recommended to the Committee will be designated as graduates "with distinction".

Courses Offered

Integrated Science 60.300

Seminar on Selected Topics in Science

Seminars on topics in science and its relation to other human activities will be presented. The First term will present a scientific survey of the evolution of the world, terminating with the emergence of man. The Second term will deal with some of the social consequences of science. Each student will work on a project, in consultation with a faculty adviser. This course is required of students in the Third year of this program. Other Science students with advanced standing will be admitted with permission.

Evening division, First and Second terms: Seminars two hours a week, tutorial one hour.

Integrated Science 60.498

Honours Project

A project will be carried out by the student in consultation with a faculty adviser. The project must be approved by the adviser's department and by the Chairman of the Integrated Science Studies program.

Humanities

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First year standing or higher.

Day division: Lectures three hours a week.

B. Wand and others

Humanities 10.200

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from the points of view of history, philosophy, social science and literature.

Prerequisite: Second year standing or higher.

Day division: Lectures two hours a week.

Not offered 1975-76.

Other Courses

Computing Science, see p. 382.

Technology, Society and Environment Studies, see p. 390.

St. Patrick's College Interdisciplinary courses, see p. 236.

Department of Mathematics

Officers of Instruction

Chairman

D.A. Dawson

Assistant Chairmen

M. Csörgö (*Graduate Studies*)

L.D. Nel (*Undergraduate Studies*)

Professors

P.R. Beesack

M. Csörgö

D.K. Dale

D.A. Dawson

J.D. Dixon

V. Dlab

M.S. Macphail

P. Mandl

F.H. Northover

J.N.K. Rao

R.L. Rosenberg

Helga H. Schirmer

W. Schneider

D.W. Sida

Associate Professors

M. Chacron

F. Fiala

R.M. Fischler

C.W.L. Garner

J.E. Graham

L.D. Nel

E.J. Norminton

J.N. Pandey

J.C. Poland

I. Pressman

B.M. Puttaswamaiah

M. Rahman

L. Ribes

E. Saleh

R.J. Semple

A. Smith

P. Tan

K.S. Williams

Assistant Professors

K. Hardy

Marianne Helfenstein (*St. Patrick's College*)

E. Hughes

A.B.M.L. Kabir

L.E. May

M.J. Moore

G. Zelmer

Lecturer

Marion J. Watson

Adjunct Professor

M. Grmela

Course Numbering

Course numbers prefixed by 70 indicate courses intended primarily for Honours students; course numbers prefixed by 71 (with the exception of Mathematics 71.461) indicate courses restricted to elementary or high school teachers of mathematics; all other courses have numbers prefixed by 69. Credit will not be given for two courses having the same number but different prefixes.

Students entering First year who plan to take a Major, Combined Major, Honours, or Combined Honours in Mathematics or a Major or Honours in Mathematical Science, should obtain the advice of the Department regarding their choice of courses.

Major Programs: B.A. and B.Sc. (Mathematics) B.A. and B.Sc. (Mathematical Sciences)

B.A. and B.Sc. (Mathematics)

A total of fifteen courses is required in accordance with the conditions given below. All course selections *must* be approved by the Mathematics Department. In certain cases the Department will permit a student to replace courses listed below by corresponding Honours courses.

Course Requirements

1. First Year

Successful completion of First year with an average grade of C – or better in Mathematics 69.102 and 69.112, or a grade of B – or better in 69.100 or 69.101.

2. Second Year

The following Mathematics courses:

Either (a) after completion of 69.102 and 69.112: 69.208 ★, 69.218 ★, 69.245 ★, 69.257 ★; or (b) after completion of 69.100 or 69.101: 69.207 ★, 69.208 ★, 69.217 ★, 69.218 ★, 69.245 ★, 69.257 ★.

3. Third Year

The following Mathematics courses:

The equivalent of three full courses in the range 69.304 ★ to 69.386 ★, excluding 69.305 ★ and 69.306 ★. With permission of the Department one or more of these courses may be replaced by a course in the 70 series at the Third-year level or a course at the 400 level, provided that of the total of three courses, not more than two are in the same area.

4. For Mathematics Students in B.Sc. Program

(a) Two courses at the 200 level or higher, chosen from among those in Biology, Chemistry, Geology, Physics,

Computing Science (95.102 ★ (60.202 ★), 95.103 ★ (60.200 ★), 95.104 ★, 95.201 ★, 95.204 ★, 95.302 ★, 95.304 ★, 95.401 ★), Psychology (49.200 ★, 49.201 ★, 49.204 ★, 49.220 ★, 49.221 ★, 49.222 ★, 49.270 ★, 49.271 ★, 49.321 ★, 49.322 ★, 49.330 ★, 49.332 ★); Geography (45.210, 45.303 ★, 45.308 ★, 45.312, 45.325, 45.345, 45.402 ★, 45.411 ★, 45.412 ★, 45.413 ★, 45.414 ★, 45.415 ★, 45.416 ★, 45.417 ★, 45.424 ★), Technology, Society, Environment (59.301 ★, 59.302 ★, 59.401); and

(b) sufficient Arts courses to meet the program requirements of a total of two Arts electives.

5. For Mathematics Students in B.A. Program

Two courses numbered 200 or higher, chosen from any departments in the Faculty of Arts.

6. The remaining courses may be chosen from any department, including Mathematics, subject only to the restriction that of the total of fifteen courses at least half must be numbered 200 or higher.

B.A. and B.Sc. (Mathematical Sciences)

These programs in Mathematics and Computing Science are designed for students who wish to prepare themselves for a career in government, industry, management, systems analysis, and related fields which employ mathematicians. A total of fifteen courses, including a minimum of eight in Mathematics and Computing Science, is required in accordance with the conditions given below. All course selections must be approved by the Mathematics Department. In certain cases the Department will permit a student to replace courses listed below by corresponding Honours courses.

Although the first two years are common to all, the final year is arranged in *four* streams or areas of specialization from which a student must choose one. The four streams are: (a) Statistics, (b) Operations Research and Stochastic Processes, (c) Dynamical Systems, (d) Computer Mathematics.

Course Requirements

1. First and Second Years

(a) Successful completion of First year with an average of C – or better in Mathematics 69.102 and 69.112, or an average grade of B – or better in Mathematics 69.100 or 69.101.

(b) Two half courses from Computing Science, prefixed 95, excluding 95.101 ★.

(c) Mathematics 69.257 ★ (which may be taken in either First or Second year).

(d) Either (i) after completion of 69.102 and 69.112; at least two of 69.208 ★, 69.218 ★, 69.245 ★, or (ii) after completion of 69.100 or 69.101; 69.207 ★ and 69.217 ★, together with at least two of 69.208 ★, 69.218 ★, 69.245 ★, (one of which may be deferred until the Third year).

2. Third Year

The following Mathematics and Computing Science courses according to the particular stream or area of specialization chosen:

(a) Statistics

(i) Mathematics 69.350, 69.351

(ii) One additional mathematics half course at the Third year level

(iii) The equivalent of one additional full course at the Second or Third year level chosen from Mathematics and Computing Science

(b) Operations Research and Stochastic Processes

(i) Mathematics 69.350, 69.381 ★, and 70.356 ★

(ii) One additional Mathematics half course at the Third year level

(iii) The equivalent of one additional full course at the Second or Third year level chosen from Mathematics and Computing Science

(c) Dynamical Systems

(i) Mathematics 69.345 ★, 69.346 ★

(ii) One of Mathematics 69.304 ★, 69.307 ★, 69.381 ★

(iii) The equivalent of one additional full mathematics course at the Third year level

(iv) The equivalent of one additional full course at the Second or Third year level chosen from Mathematics and Computing Science

(d) Computer Mathematics

(i) Mathematics 69.384 ★, 69.386 ★, 70.385 ★

(ii) The equivalent of one additional full mathematics course at the Third year level

(iii) The equivalent of one additional full course at the Second or Third year level chosen from Mathematics and Computing Science

3. For Mathematical Sciences Students in B.A. Program

Two courses number 200 or higher, chosen from any departments in the Faculty of Arts.

4. For Mathematical Sciences Students in the B.Sc. Program

(a) Two courses at the 200 level or higher, chosen from among those in Biology, Chemistry, Geology, Physics, Computing Science, Geography, Psychology, and Technology, Society, Environment. Acceptable courses in Computing Science, Geography and Psychology are the same as those outlined for the B.Sc. Major program in Mathematics. Computer Science courses already chosen under requirements 1 and 2 above may be counted towards this requirement.

(b) Sufficient arts courses to meet the program requirements of a total of two arts electives.

5. The remaining courses may be chosen from any departments, including Mathematics, subject only to the restriction that of the total of fifteen courses, at least half must be numbered 200 or higher.

Combined Major Programs: B.A.

In general, the Mathematics requirements will be the same as those listed under sections 1, 2 and 3 of the B.A. Major program in Mathematics described above, except that the equivalent of only two full courses in 3 will be required instead of three. All such programs must be arranged in consultation with the Mathematics Department.

Honours Programs: B.A. Hons. and B.Sc. Hons. (Mathematics); B.A. Hons. and B.Sc. Hons. (Mathematical Sciences)

The Department of Mathematics offers two kinds of programs leading to an Honours degree. One program emphasizes fundamental concepts in mathematics and leads to an Honours degree in Mathematics. This program gives a strong training in pure mathematics with the option of advanced courses in mathematical applications. The other program is "career-oriented" and leads to an Honours degree in Mathematical Sciences. In this program a particular career stream is chosen and courses are concentrated in this area. There is flexibility between the two programs so that even at the end of the Second year a student enrolled in one program can change to the other by addition of at most one course. In each of the programs a total of twenty courses is required.

B.A. Hons. and B.Sc. Hons. (Mathematics)

A total of twenty courses is required in accordance with the conditions given below. All course selections *must* be approved by the Mathematics Department.

Course Requirements

1. First Year

Successful completion of First year with an average grade of C- or better in Mathematics 69.102 and 69.112, or a grade of B- or better in Mathematics 69.100 or 69.101; and an overall grade point average of at least 3.6.

2. Second Year

The following Mathematics courses:

Either (a) after completion of 69.102 and 69.112: 70.200, 70.210, 70.260; or

(b) after completion of 69.100 or 69.101: 69.207*, 69.217*, 70.200, 70.210, 70.260. (One of the last three courses may be delayed until Third year.)

3. Third and Fourth Years

The following Mathematics courses:

(a) 70.301*, 70.302*, 70.307*, 70.310, 70.495*.

(b) the equivalent of one and one half courses at the 400 level; and

(c) the equivalent of one and one half courses selected from 70.308*, 70.326*, 70.336*, 70.345*, 70.346*, 70.350, 70.355*, 70.356*, 70.385*, and all courses at the 400 level.

Notes

(i) It is strongly recommended that both Mathematics 70.301* and 70.302* be taken in the Third year.

(ii) Mathematics 70.495 is the Honours Project in Mathematics. It consists of a written report on some approved topic or topics in the field of Mathematics together with a short lecture on the report. Each student should commence work on his project under a faculty supervisor before June 1 of his Third year. The first draft of this report must be submitted to a supervisor by November 1, and the final draft to the Department by January 15. Students who do not meet this latter deadline will be given the grade *Abs*.

4. For B.Sc. Hons. Students

(a) Two courses at the 200 level or higher, chosen from among those in Biology, Chemistry, Geology, Physics, Computing Science, Geography, Psychology and Technology, Society, Environment. Acceptable courses in Computing Science, Geography and Psychology are the same as those outlined for the B.Sc. Major program.

(b) Sufficient Arts courses to meet the program requirements of a total of two Arts electives.

5. For B.A. Hons. Students

Two courses numbered 200 or higher, chosen from any department in the Faculty of Arts.

6. The remaining courses may be chosen from any department, including Mathematics, subject only to the restriction that of the total of twenty courses, not more than seven may be below the 200 level.

B.A. Hons. and B.Sc. Hons. (Mathematical Sciences)

A total of twenty courses, including a minimum of eleven and a half in Mathematics and Computing Science, is required in accordance with the conditions given below. All course selections must be approved by the Mathematics Department.

Although the first two years are common to all, the final two years are arranged in four streams or areas of

specialization from which a student must choose one. The four streams are: (a) Statistics, (b) Operations Research and Stochastic Processes, (c) Dynamical Systems, (d) Computer Mathematics.

Course Requirements

1. First and Second Years

Entry is possible either from Mathematics 69.102 and 69.112 or from Mathematics 69.100 or 69.101. For students from the latter courses, the requirements are listed under 6 below.

(a) Successful completion of First year with an average grade of C– or better in Mathematics 69.102 and 69.112, and an overall grade point average of at least 3.6.

(b) Mathematics 69.257 ★ and a half course in Computing Science, prefixed 95, excluding 95.101 ★. (Students are strongly advised to complete one or both of these in First year.)

(c) Mathematics 70.200, 70.210 and 70.260. (Mathematics 70.210 may be delayed until Third year.)

2. Third and Fourth Years

(i) The following courses in Mathematics chosen according to the area of specialization as follows:

(a) *Statistics*

Mathematics 70.350, 70.355 ★, 70.356 ★, 70.450 ★, and one half course from the range 70.451 ★ to 70.458 ★.

(b) *Operations Research and Stochastic Processes*
Mathematics 69.381 ★, 70.350, 70.356 ★, 70.458 ★, and one half course from the range 70.451 ★ to 70.457 ★.

(c) *Dynamical Systems*

Mathematics 70.345 ★, 70.346 ★, 70.445 ★, 70.470 ★. Two of 69.381 ★, 70.301 ★, 70.302 ★, 70.307 ★, 70.308 ★

(d) *Computer Mathematics*

Mathematics 69.384 ★, 69.386 ★, 70.385 ★, 70.486 ★; one of 70.482 ★, 70.483 ★ or 70.485 ★; and one additional half course in mathematics at the Third year level or above.

(ii) The following *additional* courses in Mathematics or Computing Science:

One of 70.301 ★, 70.302 ★, 70.307 ★, 70.308 ★.

Mathematics 70.495 ★ (see page 356) and one additional half course in Mathematics at the 400 level.

The equivalent of one full course in Mathematics (70 series or taken from 69.304 ★, 69.381 ★, 69.384 ★, 69.386 ★) or from Computing Science (95 series).

3. For Mathematical Sciences Students in B.Sc. (Hons.) Program

(a) Two courses at the 200 level or higher, chosen from among those in Biology, Chemistry, Geology, Physics, Computing Science, Geography, Psychology and Technology, Society, Environment. Acceptable courses in Computing Science, Geography, Psychology and Technology, Society, Environment are the same as those outlined for the B.Sc. Major program in Mathematics.

Computer Science courses already chosen under requirements 1 and 2 above may be counted towards this requirement.

(b) Sufficient arts courses to meet the program requirements of a total of two arts electives.

4. For Mathematical Sciences Students in B.A. (Hons.) Program

Two courses numbered 200 or higher, chosen from any departments in the Faculty of Arts.

5. The remaining courses may be chosen from any department, including Mathematics, subject to the restriction that of the total twenty courses, not more than seven may be below the 200 level.

6. Entry from Mathematics 69.100 or 69.101

The following are the Mathematics and Computing Science requirements for this program, the remaining are as given in 3, 4, 5 above:

(a) Successful completion of First year with an average grade of B– or better in Mathematics 69.100 or 69.101, and an overall grade point average of at least 3.6.

(b) *First and Second Year*

Mathematics 69.207 ★, 69.217 ★, Mathematics 69.257 ★, and a half course in Computing Science, prefixed 95 (excluding 95.101 ★);
Mathematics 70.260.

(c) *Third Year*

Mathematics 70.200. (Alternatively, a student may take 69.208 ★ in the Second year and 69.309 ★ in the Third year).

The equivalent of the two courses in Mathematics required by the stream or area of specialization chosen.

(d) *Third or Fourth Year*

Mathematics 70.210 and one half course chosen from Mathematics 70.301 ★, 70.302 ★, 70.307 ★, 70.308 ★.

(e) *Fourth Year*

The equivalent of three full courses to complete program requirements as prescribed in 2.

Combined Honours Programs: B.A. Hons.

Economics and Mathematics

Course Requirements

1. At least seven courses in Economics to include Economics 43.100, 43.200, 43.210, one course from category 3, 43.490, 43.499 ★ and one and a half other courses at the 400 level. With permission of the Honours supervisor and the instructor, 43.490 may be replaced by 43.575.

2. At least seven courses in Mathematics beyond the First year (if 69.102 and 69.112 were taken in First year)

to include Mathematics 70.200, 70.210, 70.260, 70.301★, 70.302★, 70.350 and two other courses at the 300 level or higher, at least one of which is at the 400 level.

3. The comprehensive examination in Economics must be completed.

4. Each year's program must be determined in consultation with the two departments.

Mathematics and Philosophy

Course Requirements

1. At least seven courses in Philosophy: an introductory course; 32.205; 32.215; 32.250 or 32.380; 32.230; one of 32.210 or 32.330 or another Philosophy course; one full course or the equivalent at the 400 or 500 level.

2. At least seven courses in Mathematics beyond First year (if 69.102 and 69.112 were taken in First year) to include Mathematics 70.200, 70.210, 70.260, 70.301★, 70.302★, 70.310 and two other courses at the 300 level or higher, at least one of which is at the 400 level.

3. Each year's program must be determined in consultation with the two departments.

Other Combined Programs

Other combined honours programs such as German and Mathematics, Geography and Mathematics, are also available. Please consult the Department of Mathematics for full details.

Double Honours Program: B.Sc. Honours

Mathematics and Physics

Entrance Criteria

Successful completion of First year with a B+ or better in Mathematics 69.102, 69.112 and Physics 75.100 or permission of both departments.

Course Requirements

First Year

- (a) Mathematics 69.102, 69.112;
- (b) Physics 75.100;
- (c) Chemistry 65.100 or Biology 61.100;
- (d) one Arts elective.

Note: It is highly recommended that Computing Science 95.103★ (60.200★) be taken in the First year in addition to the above courses.

Second Year

- (a) Mathematics 70.200, 70.210, 70.260;
- (b) Physics 75.211★, 75.222★, 75.232★, 75.241★;
- (c) one half Arts elective.

Third Year

- (a) Mathematics 70.301★, 70.302★, 70.310;
- (b) Physics 75.307★, 75.338★, 75.361★, 75.362★;
- (c) Mathematics 70.345★ or Physics 75.381★; a half course in Mathematics or Physics at the 300 level; Mathematics 70.307★ together with Physics 75.388★, or Physics 75.386.

Fourth Year

- (a) One Mathematics course at the 400 level (or equivalent);
- (b) Physics 75.437★, 75.447★, 75.477★, 75.478★;
- (c) two half courses at the 300 or 400 level in Mathematics or Physics;
- (d) Honours project in Mathematics or Physics (half course);
- (e) one half Arts elective.

Summary of Major Programs

Three Year Pass Program: B.A. or B.Sc. (Mathematics)

[NOTE: Only Mathematics requirements are shown].

First and Second Years	Elementary Calculus and Algebra (69.100) Linear Algebra (69.217*) Elementary Calculus (69.207*)	OR	Calculus (69.102) Algebra (69.112)
Second Year	Mathematics 69.208*, 69.218*, 69.245*, 69.257*		
Third Year	Three Mathematics courses at the Third year level		

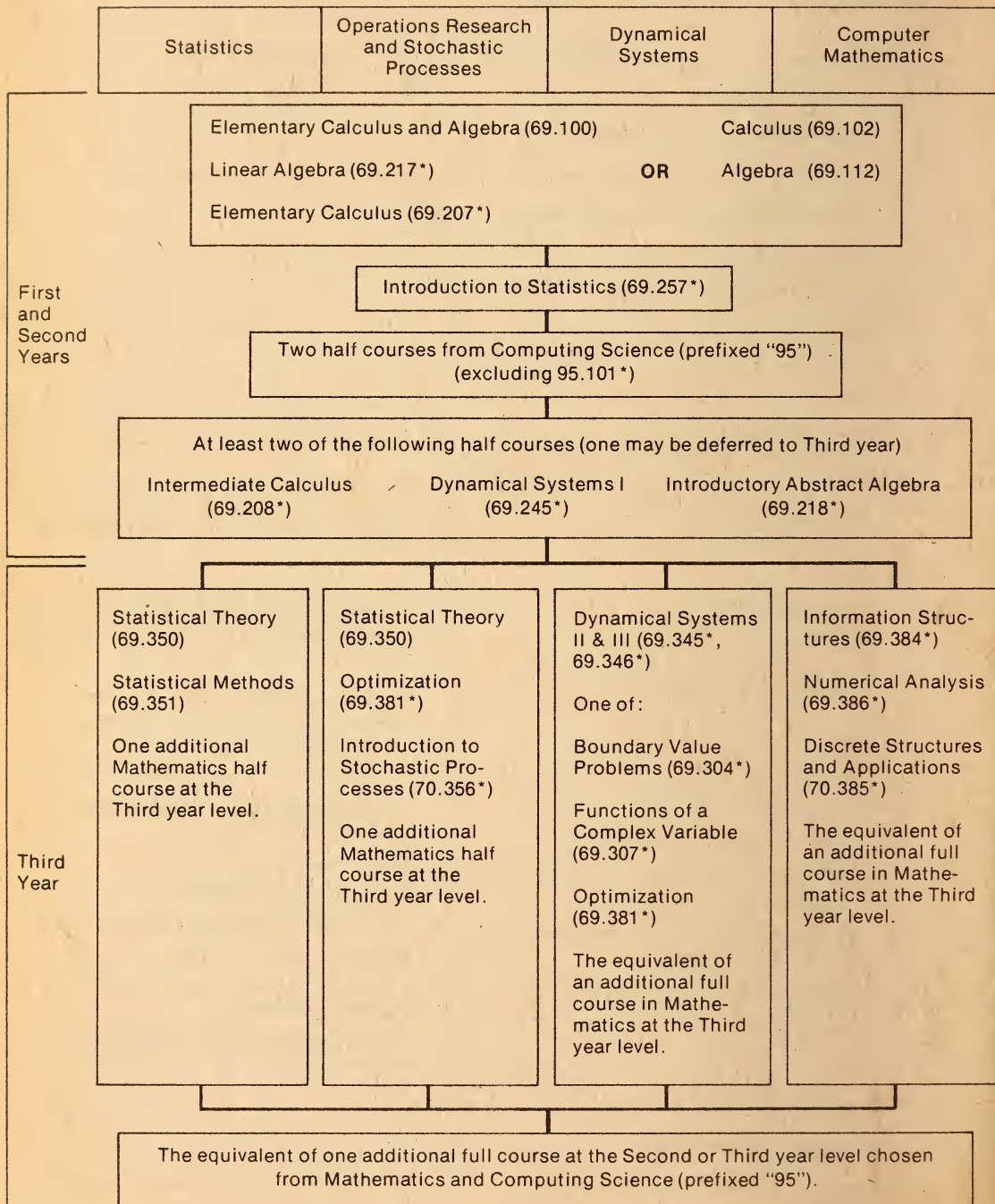
Summary of Honours Programs

Four Year Honours Program: B.A. or B.Sc. (Mathematics)

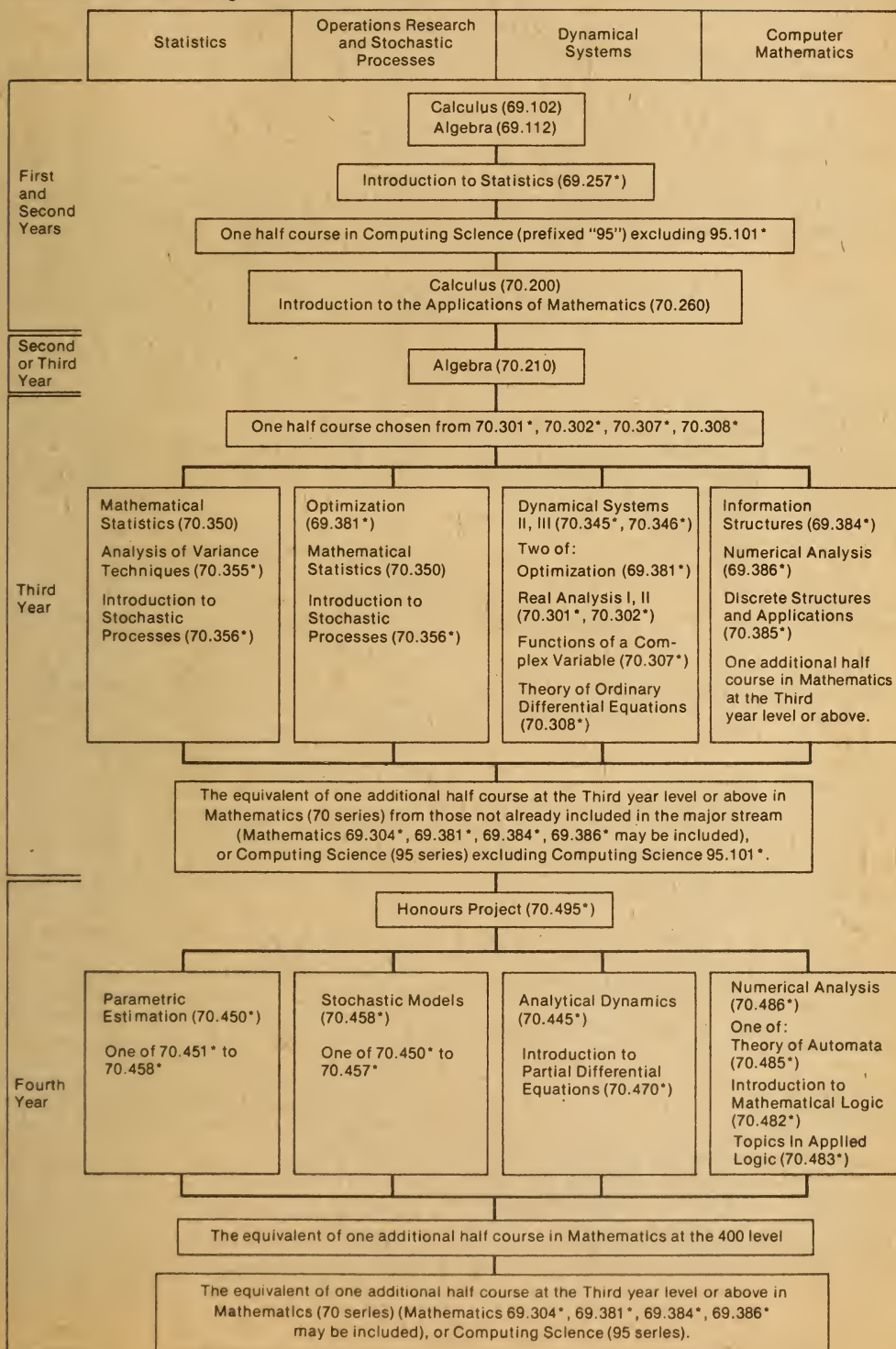
First Year	Calculus (69.102) Algebra (69.112)	Elementary Calculus and Algebra (69.100)
Second Year	Calculus (70.200) Algebra (70.210) Introduction to the Applications of Mathematics (70.260)	Elementary Calculus II (69.207*) Linear Algebra (69.217*) Two of: Calculus (70.200), Algebra (70.210), Introduction to the Applications of Mathematics (70.260)
Third and Fourth Years	Real Analysis I (70.301*) Real Analysis II (70.302*) Functions of a Complex Variable (70.307*) Modern Algebra (70.310) 1½ Mathematics courses (70 series) at the 300 or 400 level 1½ Mathematics courses (70 series) at the 400 level	Remaining course from Mathematics 70.200, 70.210, 70.260. Real Analysis I (70.301*) Real Analysis II (70.302*) Functions of a Complex Variable (70.307*) Modern Algebra (70.310) 1½ Mathematics courses (70 series) at the 300 or 400 level 1½ Mathematics courses (70 series) at the 400 level
Fourth Year	Honours Project 70.495*	

Three Year Pass Program: B.A. or B.Sc. (Mathematical Sciences)

[NOTE: Only Mathematics and Computing Science requirements are shown].



Four Year Honours Program: B.A. or B.Sc. (Mathematical Sciences)



Graduate Programs: M.Sc. and Ph.D.

For requirements for graduate degrees, see the Graduate Studies and Research Calendar.

St. Patrick's College Program

The regulations governing the Combined Majors Program in Mathematics are listed under the St. Patrick's College section, p. 217.

Courses Offered

Mathematics 69.010**Introductory Calculus**

Concept of a function, special functions including circular functions, elements of analytical geometry, limits, continuous functions, slopes and simple derivatives and their applications. Antiderivatives and applications.

Day and Evening divisions: Lectures three hours a week and one hour tutorial.

Mathematics 69.011**Introductory Algebra**

Sets, mathematical induction, permutations, combinations, probability, binomial theorem, elements of linear algebra, complex numbers and algebraic equations.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.100**Elementary Calculus and Algebra**

Functions, limits, derivatives, differentiation and applications; special functions; the definite and indefinite integral and techniques of integration; complex numbers; vector algebra and geometry in 2 and 3 dimensions; matrix algebra. This course is intended for Engineering and Science students.

Prerequisite: Mathematics 69.010 (Grade 13 Mathematics: Functions and Calculus, two credits).

Precludes additional credits for Mathematics 69.101, 69.102, 69.112, 69.130.

Day and Evening divisions: Lectures three hours a week and one hour tutorial.

Mathematics 69.101**Introductory Mathematics**

Functions, limits, derivatives, differentiation and applications; special functions; the definite and indefinite integral and techniques of integration; partial differentiation; introduction to differential equations; vector algebra and geometry in 2 and 3 dimensions; matrix algebra. This course is intended for Arts and Commerce students. (Also listed as Mathematics 00.101.)

Prerequisite: Mathematics 69.010 (Grade 13 Mathematics: Functions and Calculus, two credits).

Precludes additional credits for Mathematics 69.100, 69.102, 69.112, 69.130.

Day and Evening divisions: Lectures three hours a week and one hour tutorial.

Mathematics 69.102**Calculus**

Functions, limits, derivatives, differentiation and applications, the definite integral, special functions, techniques of integration (including partial fractions), parametric equations, improper integrals, l'Hôpital's rules, sequences and series, Taylor's formula and series, differential equations. This course is intended for students who wish to Major or to enter an Honours program in Mathematics.

Prerequisite: Mathematics 69.010 (Grade 13 Mathematics: Functions and Calculus, two credits). This course must be taken concurrently with Mathematics 69.112.

Precludes additional credits for Mathematics 69.100, 69.101, 69.130, 69.207 *.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.112**Algebra**

Fields, complex numbers, vector algebra and geometry in 2 and 3 dimensions, matrix algebra, linear dependence, bases, linear transformations, bilinear and quadratic forms, inner products, eigenvalues, principle axis theorem. This course is intended for students who wish to Major or enter an Honours program in Mathematics.

Prerequisite: Mathematics 69.010 (Grade 13 Mathematics: Functions and Calculus, two credits). This course must be taken concurrently with Mathematics 69.102.

Precludes additional credits for Mathematics 69.100, 69.101, 69.130, 69.217 *.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.130**Excursions into Mathematics**

An introduction to mathematical reasoning and methods, selected topics such as: proportion and the golden section, optimization problems, perspective, symmetries and patterns, curves, solid geometry and polyhedra, mathematics and arts, approximations, problem solving. Intended for Architecture students, but topics will be of interest to students in Humanities. (Also listed as Architecture 79.100.)

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.140**Gambling**

Horse racing, stock market, casino gambling, poker,

politics and war, etc., treated from a mathematical point of view; history of gambling and its effect on the development of probability and statistics. Intended for students not Majoring in Mathematics.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.201

Intermediate Calculus

Differential calculus of functions of several variables, multiple integration, elements of infinite series, complex numbers, differential equations. Intended for non-Science students.

Prerequisite: Mathematics 69.100 or 69.101.

Precludes additional credits for Mathematics 69.202, 69.203, 69.207★, 69.208★, 70.200.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.202

Intermediate Mathematics

Partial differentiation, infinite series, multiple integration, differential equations, Fourier series, introduction to matrix and eigenvalue problems. Intended for Science students.

Prerequisite: Mathematics 69.100 or 69.101.

Precludes additional credits for Mathematics 69.201, 69.203, 69.207★, 69.208★, 70.200.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.203

Intermediate Mathematics

Vectors, functions of two variables, sequences and series, elementary complex variable; ordinary differential equations. Intended for Science students.

Prerequisite: Mathematics 69.100 or permission of the Department.

Precludes additional credits for Mathematics 69.201, 69.202, 69.207★, 69.208★, 70.200.

Not offered 1975-76, 1976-77.

Mathematics 69.207★

Elementary Calculus II

Further techniques of integration, improper integral, polar coordinates, parametric equations, indeterminate forms, sequences and series, Taylor's formula and series, first order and linear differential equations.

Prerequisite: Mathematics 69.100.

Precludes additional credits for Mathematics 69.102, 69.201, 69.202, 69.203.

Day and Evening divisions, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.208★

Intermediate Calculus

Partial differentiation, chain rule, gradient, line and multiple integrals with applications, transformations, implicit and inverse function theorems.

Prerequisites: Mathematics 69.102, or 69.100 and 69.207★.

Precludes additional credits for Mathematics 69.201, 69.202, 69.203, 70.200.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.217★

Linear Algebra

n-dimensional vector spaces, linear dependence and bases, linear transformations and matrices, bilinear and quadratic forms, inner products, eigenvalues, principal axis theorem.

Prerequisite: Mathematics 69.100.

Precludes additional credit for Mathematics 69.112.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.218★

Introductory Abstract Algebra

Sets and relations, number theory, group theory, ring theory, cardinal numbers.

Prerequisites: Mathematics 69.112, or 69.100 and 69.217★.

Precludes additional credit for Mathematics 70.210.

Day division, First term and Evening division, Second term.

Mathematics 69.245★

Dynamical Systems I

Introduction to one and two-dimensional Newtonian mechanics of a particle. Conservation laws. Simple harmonic motion and other solvable problems in rectilinear motion. Central forces and general particle motion in a plane. Difference equations and applications to biological systems. Application of differential equations to population problems. Linear programming with applications.

Prerequisites: Mathematics 69.102 and 69.112 (or 69.100 and 69.207★).

Precludes additional credit for Mathematics 70.260.

Day and Evening divisions, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.250

Introduction to Statistical Analysis

Frequency distributions; moments; measures of central tendency, dispersion, skewness; probability; distributions (Binomial, Poisson, Normal, z , t , F , χ^2); statistical inference, confidence intervals; experimental designs (randomized block, Latin square); enumeration statistics; least squares analysis, introduction to correlation and regression analysis; non-parametric tests. Intended for non-Mathematics students.

Prerequisites: Mathematics 69.010 and 69.011.

Precludes additional credit for Mathematics 69.257★, 69.258★, 70.260, Economics 43.220, Psychology 49.205★, 49.305, Sociology 53.205.

Day and Evening divisions: Lectures three hours a week, one hour tutorial.

Mathematics 69.257 ★

Introduction to Statistics

Descriptive statistics: frequency distributions, histograms and ogives, numerical measures of characteristics; introduction to probability theory; mathematical expectation; the binomial hyper-geometric and Poisson probability functions; continuous distributions; properties and applications of the normal, t , x^2 and F distributions to interval estimation and testing of hypotheses; enumeration statistics; simple linear regression and correlation.

Prerequisites: Mathematics 69.102 and 69.112, or 69.100 or 69.101. May be taken concurrently.

Precludes additional credits for: Mathematics 69.250, 69.258 ★, Economics 43.220, Psychology 49.205 ★, 49.305, Sociology 53.205.

Evening division, First term and Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.258 ★

Introduction to Statistical Methods

Descriptive methods of distributions; introduction to probability theory and applications; discrete and continuous probability distributions; point and interval estimation; testing of hypotheses; enumeration statistics and goodness-of-fit tests; simple linear regression and correlation analysis. Use of computer (FORTRAN programming).

Prerequisites: Mathematics 69.100 or 69.101 or 69.102 and 69.112.

Precludes additional credits for: Mathematics 69.250, 69.257 ★, Economics 43.220, Psychology 49.205 ★, 49.305, Sociology 53.205.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.304 ★

Boundary Value Problems

Differential equations; solution in series; the formulation of boundary value problems in mechanics, heat conduction, etc.; the method of separation of variables; eigenfunctions and eigenvalues; Fourier series; Bessel and Legendre functions and applications; Laplace transforms.

Prerequisite: Mathematics 69.208 ★, 69.201, 69.202 or 69.203.

Precludes additional credits for Mathematics 69.306 ★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.305 ★

Functions of a Complex Variable

Analytic functions, contour integration, residues, conformal transformations, Laplace transform. Intended for Engineering students.

Prerequisite: Mathematics 69.201.

Precludes additional credits for Mathematics 69.307 ★, 70.307 ★.

Day division, First term: Lectures three hours a week, and one hour tutorial.

Mathematics 69.306 ★

Mathematical Methods I

Series solution of ordinary differential equations, solution of partial differential equations of mathematical physics, special functions, Fourier analysis, boundary value problems. Intended for Engineering students.

Prerequisite: Mathematics 69.201.

Precludes additional credits for Mathematics 69.304 ★, 70.308 ★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.307 ★

Functions of a Complex Variable

Analytic functions, contour integration, residue calculus, conformal mapping. Intended for non-Engineering students.

Prerequisite: Mathematics 69.208 ★, 69.201, 69.202 or 69.203.

Precludes additional credits for Mathematics 69.305 ★, 70.307 ★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.309 ★

Topics in Analysis

The real number system, sequences and series, functions of a single real variable, derivatives, the definite integral, uniform convergence.

Prerequisite: Mathematics 69.208 ★, 69.201, 69.202 or 69.203.

Precludes additional credit for Mathematics 70.200.

Evening division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.310

Modern Algebra

Continuation of the study of semigroups, groups, rings, integral domains, fields, number systems, vector spaces and lattices.

Prerequisite: Mathematics 69.218 ★.

Precludes additional credit for Mathematics 70.310.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.325 ★

Euclidean Geometry and its Groups

Transformations of the Euclidean plane (isometries, similarities); solutions of geometric problems using these transformations; groups of symmetries of finite plane figures, frieze patterns, and regular polyhedra; inversion and the extension to the inversive plane; problems solved using inversion; orthogonal circles and pencils of coaxial circles.

Prerequisite: Mathematics 69.218 ★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.326 ★**Plane Projective Geometry**

Axioms of desarguesian geometry, principle of duality; projectivities, perspectivities, and the fundamental theorem; collineations (homologies and elations); correlations (polarities and conics); algebraic model; introduction to finite projective planes.

Prerequisite: Mathematics 69.218 ★.

Precludes additional credit for Mathematics 70.326 ★.

Not offered 1975-76.

Mathematics 69.335 ★**Introduction to the Theory of Numbers**

Euclidean algorithm, unique factorization theorem, linear diophantine equations, congruences, Fermat and Wilson theorems, primitive roots, quadratic residues, arithmetic functions, sums of squares, Pell's equation, rational approximation to real numbers.

Prerequisite: Mathematics 69.218 ★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.345 ★**Dynamical Systems II**

Dynamics of particle-systems; linear and angular momentum; conservation laws; collisions. Rotating axes; motion of a particle near the earth. Two-dimensional rigid body motion; moment of inertia; angular momentum. Euler equations; Lagrange's equations.

Prerequisites: Mathematics 69.208 ★ and 69.245 ★.

Precludes additional credit for Mathematics 70.345 ★.

Evening division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.346 ★**Dynamical Systems III**

Further developments of difference and differential equations, of linear and dynamic programming and of matrix methods, with applications in biology, economics and other social sciences.

Prerequisites: Mathematics 69.217 ★, 69.208 ★ and 69.245 ★.

Precludes additional credit for Mathematics 70.346 ★.

Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.350**Statistical Theory**

Probability; axiomatic development; density functions, discrete and continuous variates, univariate, multivariate, marginal and conditional; expectation; moment generating function; distributions of functions of random variates; limiting distributions; point and interval estimation; hypothesis testing, Neyman-Pearson lemma, likelihood ratio test.

Prerequisites: Mathematics 69.208 ★, 69.218 ★ and 69.257 ★ (or 69.258 ★ or 70.260).

Precludes additional credit for Mathematics 70.350.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.351**Statistical Methods**

Statistical preliminaries; simple and multiple regression techniques; correlation analysis; design of experiments including the completely randomized, randomized block, Latin square designs; factorial treatment structures; the analysis of covariance; non-parametric methods, related topics.

Prerequisites: Mathematics 69.257 ★ or 69.258 ★ or 70.260; or 69.100 or 69.101 and an introductory statistics course.

Precludes additional credits for Mathematics 70.355 ★, Psychology 49.305.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.381 ★**Optimization**

Mathematical foundations of model building. Classical optimization. Unconstrained problems. Linear programming, network flow problems, nonlinear programming. Integer programming.

Prerequisites: Mathematics 69.208 ★ (or 69.201), 69.217 ★ and Computing Science 95.103 ★ (60.200 ★).

Day division, Second term: Lectures three hours a week and laboratory.

Mathematics 69.384 ★**Information Structures**

Discrete structures. Graphs, trees, strings, and their applications. Digraphs of programs. Computer representation of structures. Storage of arrays, sparse matrices, allocation of execution time. Pushdown stores, lists, and list structures. List processing. Sorting and searching techniques. (Also listed as Computing Science 95.384 ★.)

Prerequisites: Mathematics 69.217 ★ (or equivalent) and an introductory computing science course.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.386 ★**Numerical Analysis**

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. (Also listed as Computing Science 95.386 ★.)

Prerequisites: Computing Science 95.103 ★ (60.200 ★), Mathematics 69.102 and 69.112, or 69.207 ★ and 69.217 ★, or 69.201 or 69.202 or 69.203.

Evening division, First term: Lectures three hours a week and laboratory.

Mathematics 69.409 ★**Mathematical Methods II**

Uniform convergence, general theory of linear differential equations, Frobenius' method, partial differential equations. Intended for Engineering students.

Prerequisites: Mathematics 69.305 ★ and 69.306 ★.
Day division, First term: Lectures three hours a week.

Mathematics 70.200

Calculus

Real numbers, sequences, infinite series of real or complex constants, limits and continuity, functions of several variables, definite, multiple, line integrals, infinite series of functions.

Prerequisites: Mathematics 69.102 and 69.112 (Honours students).

Precludes additional credits for Mathematics 69.201, 69.202, 69.203, 69.208 ★, 69.309 ★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.210

Algebra

Set theory, algebraic systems, vector spaces, inner product spaces, linear transformations, determinants, quadratic forms, selected applications.

Prerequisites: Mathematics 69.102 and 69.112 (Honours students).

Precludes additional credit for Mathematics 69.218 ★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.260

Introduction to the Applications of Mathematics

Mathematical foundations of model building, linear programming, models, differential models and introduction to the mathematical foundations of classical mechanics, discrete probability models, linear statistical models, game theoretic models, statistical decisions and tests of hypothesis. Applications in a variety of fields.

Prerequisites: Mathematics 69.102 and 69.112 (Honours students).

Precludes additional credits for: Mathematics 69.245 ★, 69.250, Economics 43.220, Psychology 49.205 ★, 49.305, Sociology 53.205.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.301 ★

Real Analysis I

Metric spaces; limits, continuity, open and closed sets, connectedness, bounded and compact sets, complete spaces. Riemann integration, improper integrals.

Prerequisite: Mathematics 70.200 or permission of the Department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.302 ★

Real Analysis I

Convergence and uniform convergence of sequences of functions. Introduction to Lebesgue integration and Fourier series. Some famous theorems of analysis, e.g., Weierstrass' approximation theorem, Picard's theorem or Arzela's theorem.

Prerequisite: Mathematics 70.200 or permission of the Department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.307 ★

Functions of a Complex Variable

Analytic functions, contour integration, residue calculus, conformal mapping.

Prerequisite: Mathematics 70.200, or permission of the Department.

Precludes additional credits for Mathematics 69.305 ★, 69.307 ★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.308 ★

Theory of Ordinary Differential Equations

Linear differential equations, systems of linear first order equations, adjoints and integrating factors, the Cauchy problem, analytic differential equations, existence theory, regular singular point theory, Sturm-Liouville theory.

Prerequisites: Mathematics 70.200, 70.301 ★, 70.302 ★, 70.307 ★ (may be taken concurrently).

Precludes additional credits for Mathematics 69.306 ★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.310

Modern Algebra

Groups, rings, lattices, Boolean algebras, integral domains, fields, polynomial rings, Field theory. Advanced matrix algebra, Jordan canonical form, simultaneous diagonalization, Hermitian forms.

Prerequisite: Mathematics 70.210, or permission of the Department.

Precludes additional credit for Mathematics 69.310.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.326 ★

Foundations of Projective Geometry

Definition of a general projective plane and immediate consequences; finite planes (combinatorial results, sub-planes, incidence matricies), and planar ternary rings; collineations, role of Desargues' configuration, examples of types of planes.

Prerequisite: Mathematics 70.210.

Precludes additional credit for Mathematics 69.326 ★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.336 ★

Elements of Set Theory

Informal treatment of the axioms of set theory. Development of the systems of natural numbers, integers, rational numbers, and real numbers using both Dedekind sections and Cauchy sequences based on Peano's axioms. The axiom of choice, Zorn's lemma, well-order-

ing. The Schroder-Bernstein theorem, cardinal numbers, ordinal numbers, transfinite induction, cardinal and ordinal arithmetics.

Prerequisite: Mathematics 70.210, or permission of the Department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.345 ★

Dynamical Systems II

Dynamics of particle-systems; linear and angular momentum; conservation laws; collisions. Kinematics of a rigid body; moments and products of inertia; angular momentum; two-dimensional rigid body motion. Moving axes. Generalized coordinates; Lagrange's equations; small oscillations and stability.

Prerequisites: Mathematics 70.200 and 70.260.

Precludes additional credit for Mathematics 69.345 ★.

Evening division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.346 ★

Dynamical Systems III

Basic concepts of dynamical systems (physical and biological). Stability of dynamical systems. Diffusion processes. Introduction to statistical mechanics with applications to biological systems. Introduction to population genetics.

Prerequisites: Mathematics 70.200 and 70.260.

Precludes additional credit for Mathematics 69.346 ★.

Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.350

Mathematical Statistics

Random variables and moment generating functions; concepts of conditioning and correlation; laws of large numbers, central limit theorem; multivariate normal distribution; distributions of functions of random variables, sampling distributions, order statistics, empirical distribution functions, Monte Carlo methods, elements of decision theory, point estimation, interval estimation, tests of hypotheses; robustness, nonparametric methods.

Prerequisites: Mathematics 70.200, 70.210 and 70.260, or permission of the Department.

Precludes additional credit for Mathematics 69.350.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.355 ★

Analysis of Variance Techniques

Statistical inference; simple linear regression model, least squares estimators, general regression model, Gauss-Markoff Theorem; experimental design models, estimable functions, orthogonal contrasts; detailed study of completely randomized, randomized block, and Latin square designs, measure of relative efficiency; introduction to factorial experiments.

Prerequisite: Mathematics 70.350 (may be taken

concurrently), or permission of the Department.

Precludes additional credits for Mathematics 69.351, Psychology 49.305.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.356 ★

Introduction to Stochastic Processes

Recurrent events, Markov chains, Poisson processes, elements of Brownian motion and Kolmogorov-Chapman equations.

Prerequisites: Mathematics 70.200 and 70.260, or permission of the Department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.385 ★

Discrete Structures and Applications

Algebraic structures; lattices, Boolean algebra; elements of the theory of directed and undirected graphs; combinatorics; languages over an alphabet, switching circuits, optimization and complete design, algebraic codes, flow charts, connectivity, minimal paths. (Also listed as Computing Science 95.385 ★.)

Prerequisites: Mathematics 70.210 or 69.218 ★, and an introductory computing science course.

Day division, Second term: Lectures three hours a week and one hour tutorial.

■ A selection of courses in the 400 series will be offered.

Mathematics 70.401 ★

Vector Calculus

Linear transformations, multiple integrals, differential forms, vector functions and fields, vector calculus, applications.

Prerequisites: Mathematics 70.301 ★ and 70.302 ★, or permission of the Department.

Not offered 1975-76, 1976-77.

Mathematics 70.403 ★

Functional Analysis

Metric spaces, Baire's Category theorem, contraction mappings and applications; Banach spaces, subspaces and product spaces; continuous linear functionals, the dual space; Banach spaces of continuous functions, Stone-Weierstrass theorem, equicontinuity and Ascoli's theorem; Banach spaces of bounded linear operators, uniform boundedness, open mapping, bounded inverse and closed graph theorems.

Prerequisites: Mathematics 70.301 ★ and 70.302 ★ or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.407 ★

Measure Theory

Measure theory and integration of real-valued functions. Prerequisite: Mathematics 70.302 ★, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.415 ★

Rings and Modules

Fundamental concepts in rings and modules, structure theorems, applications.

Prerequisite: Mathematics 70.310, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.416 ★

Group Theory

Fundamental principles as applied to abelian, nilpotent, solvable, free, and finite groups; representations.

Prerequisite: Mathematics 70.310, or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.417 ★

Commutative Algebra

Fields, including algebraic and transcendental extensions, Galois theory, valuation theory; Noetherian commutative rings, including Noether decomposition theorem and localization.

Prerequisite: Mathematics 70.310, or permission of the Department.

Day division, First term. Offered 1975-76, not offered 1976-77.

Mathematics 70.418 ★

Homological Algebra and Category Theory

Axioms of set theory; categories, functors, natural transformations; free, projective, injective, and flat modules; tensor products and homology functors, derived functors; dimension theory.

Prerequisite: Mathematics 70.310, or permission of the Department.

Day division, Second term. Not offered 1975-76, offered 1976-77.

Mathematics 70.425 ★

Introduction to General Topology

Topological spaces, maps, subspaces, product and identification topologies, separation axioms, compactness, connectedness.

Prerequisite: Mathematics 70.301 ★, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.426 ★

Introduction to Algebraic Topology

Two-dimensional manifolds, homotopy, the fundamental group, covering spaces, CW-complexes.

Prerequisites: Mathematics 70.310 and 70.425 ★, or permission of the Department.

Day division, Second term: Not offered 1975-76, offered 1976-77.

Mathematics 70.427 ★

Foundations of Geometry

A study of at least one modern axiom system of Euclidean and non-Euclidean geometry, embedding of hyper-

bolic and Euclidean geometries in the projective plane, groups of motions, models of non-Euclidean geometry.

Prerequisite: Mathematics 70.310 (may be taken concurrently), or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.428 ★

Differential Geometry

Tensor algebra; differentiable manifolds; classical curve and surface theory; connections, Riemannian geometry, geodesics.

Prerequisite: Mathematics 70.301 ★, or permission of the Department.

Day division, Second term. Offered 1975-76, not offered 1976-77.

Mathematics 70.435 ★

Analytic Number Theory

Dirichlet series, characters, Zeta-functions, prime number theorem, Dirichlet's theorem on primes in arithmetic progressions, binary quadratic forms.

Prerequisite: Mathematics 70.307 ★ (may be taken concurrently), or permission of the Department.

Day division, First term. Not offered 1975-76, offered 1976-77.

Mathematics 70.436 ★

Algebraic Number Theory

Algebraic number fields, bases, algebraic integers, integral bases, arithmetic in algebraic number fields, ideal theory, class number.

Prerequisite: Mathematics 70.310 (may be taken concurrently), or permission of the Department.

Day division, Second term. Offered 1975-76, not offered 1976-77.

Mathematics 70.445 ★

Analytical Dynamics

Lagrange's equations, small oscillations, rigid dynamics in three dimensions, motion of top, introduction to Hamiltonian mechanics.

Prerequisites: Mathematics 70.345 ★ and 70.346 ★, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.446 ★

Hydrodynamics

Two dimensional inviscid flow, vortex motion, application of conformal transformation, axisymmetric flows.

Prerequisites: Mathematics 70.307 ★, 70.345 ★ and 70.346 ★, or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.447 ★

Tensor Analysis and Relativity Theory

Development of tensor analysis, application to Riemannian spaces and relativity theory.

Prerequisites: Mathematics 70.345 ★ and 70.346 ★, or permission of the Department.

Not offered 1975-76, 1976-77.

Mathematics 70.448 ★**Introduction to Electromagnetic Theory**

Electrostatics, Poisson and Laplace's equations, steady electric currents, dielectrics, the electro-magnetic field, magnetostatics, Maxwell's equations for bodies at rest. Prerequisites: Mathematics 70.345 ★, 70.346 ★ and 70.307 ★, or permission of the Department.

Not offered 1975-76, 1976-77.

Mathematics 70.450 ★**Parametric Estimation**

Preliminaries on probability theory; exact and asymptotic sampling distributions; unbiasedness, consistency, efficiency, sufficiency, and completeness; properties of maximum likelihood estimators; least squares estimation of location and scale parameters based on order statistics and sample quantiles; Best Asymptotically Normal (BAN) estimators.

Prerequisite: Mathematics 70.350, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.451 ★**Probability Theory**

Introduction to probability, characteristic functions, probability distributions, limit theorems.

Prerequisites: Mathematics 70.301 ★ and 70.350, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.452 ★**Sampling: Theory and Methods I**

Basic concepts in sampling from finite population; simple random sampling; stratified sampling; choice of sampling unit; cluster and systematic sampling; introduction to multistage sampling; ratio estimation; sampling with unequal probabilities and with replacement; replicated sampling; related topics.

Prerequisite: Mathematics 70.350, or permission of the Department. Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.453 ★**Regression Analysis**

Discussion of notions of statistical relationship; simple linear regression including estimation, tests of hypotheses, transformation and some applications; multiple linear regression including polynomial regression, orthogonal functions, harmonic analysis and multiple and partial correlation; selected topics in non-linear regression, discriminant analysis and stepwise regression.

Prerequisite: Mathematics 70.350, or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.456 ★**Non-Parametric Methods I**

Order statistics; rank statistics; permutations; uniform distribution over the space of permutations; distribution

of linear rank statistics; approximate normality of linear rank statistics; hypothesis of randomness; stochastic ordering; Wilcoxon test, median test, Van Der Waerden test, Kolmogorov-Smirnov test; hypothesis of symmetry and random blocks; hypothesis of independence; treatment of ties; power and efficiency of rank tests.

Prerequisite: Mathematics 70.350, or permission of the Department.

Day division, First term. Offered 1975-76, 1976-77.

Mathematics 70.457 ★**Testing of Hypotheses**

Confidence interval, fiducial interval, Bayesian interval, most powerful test, uniformly most powerful test, power function, minimal sufficiency, complete statistic, similar regions, unbiased test, likelihood ratio test.

Prerequisite: Mathematics 70.450 ★, or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.458 ★**Stochastic Models**

Markov chains, fields and processes. Analytical methods, simulation and approximation methods, inference and decision problems. Stochastic models arising in the physical, biological, social information, management and systems science.

Prerequisite: Mathematics 70.350 and 70.356 ★ or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.470 ★**Introduction to Partial Differential Equations**

First order linear, quasi-linear, and nonlinear equations; second order equations in two and more variables; systems of equations; the wave equation; Laplace's and Poisson's equations; Dirichlet and Neumann problems; Green's functions.

Prerequisites: Mathematics 70.302 ★, or 70.307 ★ and 70.308 ★, or permission of the Department.

Day division, First term, Not offered 1975-76, offered 1976-77.

Mathematics 70.471 ★**Selected Topics in Partial Differential Equations**

Theory of distributions, initial-value problems based on 2-dimensions wave equations, Laplace transform, Fourier integral transform, diffusion problems, Helmholtz equation with application to boundary and initial-value problems in cylindrical and spherical coordinates.

Prerequisite: Mathematics 70.470 ★, or permission of the Department.

Day division, Second term. Offered 1975-76, not offered 1976-77.

Mathematics 70.472 ★**Integral Transforms**

Laplace, Fourier, Hankel and Mellin transforms, selection of a suitable transform for a given partial differential equation boundary value problem. Operational proper-

ties of transforms. Inversion theorems. Approximate evaluation of inversion integrals for small and large values of parameter. Application to the solution of integral equations.

Prerequisite: Mathematics 70.307 ★, or permission of the Department.

Day division, First term. Offered 1975-76, not offered 1976-77.

Mathematics 70.473 ★

Qualitative Theory of Ordinary Differential Equations

Ordinary differential equations: existence-uniqueness theorems, vector formulation for systems; stability theory, Lyapunov theorems, perturbation theorems and structural stability; Poincaré-Bendixon theory.

Prerequisites: Mathematics 70.301 ★, 70.308 ★.

Evening division, First term. Not offered 1975-76, offered 1976-77.

Mathematics 70.476 ★

Special Functions

Gamma, Hypergeometric, Bessel and Legendre functions. Introduction to asymptotic methods.

Prerequisite: Mathematics 70.307 ★, or permission of the Department.

Not offered 1975-76, 1976-77.

Mathematics 70.482 ★

Introduction to Mathematical Logic

Symbolic Logic, propositional and predicate calculi, set theory and model theory, completeness.

Prerequisite: Mathematics 70.385 ★, or permission of the Department.

Day division, First term. Offered 1975-76, not offered 1976-77.

Mathematics 70.483 ★

Topics in Applied Logic

Recursive Functions and computability, algorithms, Church's thesis, Turing machines, computational logic.

Prerequisite: Mathematics 70.385 ★ or permission of the Department.

Day division, Second term. Not offered 1975-76, offered 1976-77.

Mathematics 70.485 ★

Theory of Automata

Algebraic structure of sequential machines, decomposition of machines; finite automata, formal languages; complexity. (Also listed as Computing Science 95.485 ★.)

Prerequisite: Mathematics 70.310, or permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.486 ★

Numerical Analysis

Study of matrix inversion techniques, techniques for finding eigenvalues and eigenvectors, introduction to problems of numerical optimization along a line and in

n-dimensional space, simulation and Monte Carlo techniques. (Also listed as Computing Science 95.486 ★.)

Prerequisite: Permission of the Department.

Day division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.487 ★

Game Theory

Two-person zero-sum games; infinite games; multi-stage games; differential games; utility theory; two-person general-sum games; bargaining problem; n-person games; games with a continuum of players.

Prerequisite: Mathematics 70.301 ★, or permission of the Department.

Evening division, Second term. Offered 1975-76, 1976-77.

Mathematics 70.495 ★

Honours Project

Consists of a written report on some approved topic or topics in the field of mathematics, together with a short lecture on the report.

Prerequisite: Honours Mathematics students only.

Mathematics 70.496 ★

Directed Studies

Prerequisite: Honours Mathematics students only.

First and Second terms.

Courses Offered for Elementary and High School Teachers

The courses Mathematics 71.461, 71.462, 71.463, 71.464, and 71.465 have been approved by the Faculty of Education, Queen's University, as courses leading to a Type A Certificate in Mathematics.

Mathematics 71.266 ★

Mathematics of the Elementary Years

Sets, relations, mappings, theory of numbers, algebra, geometry. This course will explore the important mathematical ideas of the elementary school curriculum and their interrelationships. Classroom experiences of the participants will be discussed.

Prerequisite: Open to teachers of elementary school Mathematics.

Not offered 1975-76.

Mathematics 71.366 ★

Posing and Solving Mathematical Problems

A careful analysis of how mathematical problems are formulated and solved. An examination of a number of famous mathematical problems and their solutions. Introduction to the theory of games.

Prerequisite: Open to teachers of high school Mathematics.

Not offered 1975-76.

Mathematics 71.367 ★**Real Analysis**

Real numbers, topology of the line and plane, metric spaces, limits, continuity, integration and differentiation. This course will stress the underlying concepts of calculus, and the pedagogical problems of their insertion into the curriculum.

Prerequisite: Open to teachers of high school Mathematics.

Summer 1975, Evening division: Two and a half hours a week.

Mathematics 71.461**History of Mathematics**

This course will study the historical development of various ideas in mathematics. Problems will be solved in the context of the mathematics discussed.

Prerequisites: Open to all students who have completed the equivalent of the first two years of a Mathematics Major program at Carleton, subject to the approval of the Mathematics Department.

Evening division.

Mathematics 71.462**Applications of Differential Equations**

Systems of ordinary differential equations (linear and non-linear) with applications to dynamics, chemistry, mathematical biology, and sociology. Partial differential equations of the first and second order with applications to dynamics, nuclear physics, and other fields.

Prerequisite: Students must be qualified high school teachers of Mathematics, with at least a Type B Teaching Certificate and at least the equivalent of a Carleton Major degree in Mathematics.

Summer 1975, Evening division: Five hours a week.

Mathematics 71.463**Applications of Algebra**

A selection of topics in algebra from: Boolean algebra, group theory, field theory, linear algebra, with applications.

Prerequisite: As for Mathematics 71.462.

Not offered 1975-76.

Mathematics 71.464**Computing Science and Numerical Analysis**

Introduction to computer languages and program writing; approximating solutions of polynomial and other equations, interpolation; systems of linear equations, matrix inversion, numerical solution of difference and differential equations.

Prerequisite: As for Mathematics 71.462.

Not offered 1975-76.

Mathematics 71.465**Probability, Statistics and Operations Research**

Various concepts of probability, the concept of independence, normality, statistics from an "organic" viewpoint, Markov chains, elementary queueing models, theory of

games.

Prerequisite: As for Mathematics 71.462.

Not offered 1975-76.

Courses Offered at St. Patrick's College**Mathematics**

00.010 Elementary Analysis

00.150 Introductory Mathematics

00.151 A New Approach to Calculus

Courses Planned for Summer School and Evening Division, 1975-79**Summer 1975***

69.010, 69.100, 69.101, 69.201, 69.207★, 69.217★, 69.245★, 69.257★, 69.304★, 69.309★, 69.310, 69.350, 71.367★, and 71.462.

Evening Division 1975-76

69.010, 69.100, 69.101, 69.207★, 69.208★, 69.217★, 69.218★, 69.245★, 69.257★, 69.309★, 69.345★, 69.346★, 69.386★, 70.345★, 70.346★, 70.487★, and 71.461.

Summer 1976*

69.010, 69.100, 69.101, 69.201, 69.207★, 69.217★, 69.245★, 69.257★, 69.307★, 69.309★, 69.310, 69.350, and 71.463.

Evening Division 1976-77

69.010, 69.100, 69.101, 69.207★, 69.208★, 69.217★, 69.218★, 69.257★, 69.307★, 69.325★ or 69.326★, 69.350, 70.487★ and 71.464.

Summer 1977*

69.010, 69.100, 69.101, 69.201, 69.207★, 69.217★, 69.245★, 69.257★, 69.304★, 69.309★, 69.310, 69.350 and 71.465

Evening Division 1977-78

69.010, 69.100, 69.101, 69.207★, 69.208★, 69.217★, 69.218★, 69.257★, 69.307★, 69.310, 69.351, 70.487★ and 71.461.

Summer 1978*

69.010, 69.100, 69.101, 69.201, 69.207★, 69.217★, 69.245★, 69.257★, 69.307★, 69.309★, 69.350, 71.462. One of: 69.325★, 69.326★, 69.335★, 69.386★.

Evening Division 1978-79

69.010, 69.100, 69.101, 69.207★, 69.208★, 69.217★, 69.257★, 69.304★, 69.351, 71.463.

*Timetabling may preclude the taking of both 69.310 and 69.350 or two of 69.207★, 69.245★, 69.201 in any particular summer.

Department of Physics

Officers of Instruction

Chairman
R.L. Clarke

Research Professor
E.P. Hincks

Professors
R.L. Clarke
D. Kessler
G.R. Love
M.K. Sundaresan

Visiting Professor
G. Herzberg

Associate Professors
R.D. Barton
D.J. Brown
A.L. Carter
T.J.S. Cole
L. Copley
K.W. Edwards
J.E. Hardy
R. Morrison
L. Resnick
W.J. Romo

Adjunct Professor
C.K. Hargrove

Sessional Lecturers
N.M. Ahmed
L. Avery
M. Bercovitch
L. Higgs
P.J.S. Watson

General Information

Students taking a single course in Physics should take Physics 75.010 or 75.105. Students taking more than one course in Physics should take Physics 75.100. Engineering students take Science 60.110.

Prerequisites for entry into Second year courses are normally Physics 75.100 and Mathematics 69.100. Mathematics 69.102 and 69.112 may be taken in place of Mathematics 69.100. Subject to the recommendation of the Major department and the approval of the Physics Department, other combinations of one of Physics 75.100 and 75.105 and one of Mathematics 69.100 and 69.101 may be offered. Prerequisites for the Third year courses will normally be Physics 75.211★, 75.221★, 75.232★ and 75.242★.

Major Program

Typical pattern (normal departmental requirements):

First Year

Physics 75.100
Chemistry 65.100
Mathematics 69.100
Biology 61.100 or 61.101 or Geology 67.100
One Humanity or Social Science course

Second Year

Physics 75.211★, 75.221★, 75.232★, 75.242★
Mathematics 69.203, 69.217★
One of Mathematics 69.258★ or Science 60.200★
One Humanity or Social Science course or a free option

Third Year

Physics 75.307★ or 75.308★
Physics 75.361★, 75.362★, 75.338★
Mathematics 69.305★, 69.306★ (or 69.307★, 69.308★)
Plus the equivalent of *one* full course to be chosen from:
Substitution of Physics 75.300 for 75.307★ or 75.308★;
Engineering 97.357★;
Engineering 94.366★ or Mathematics 69.386★;
Physics 75.381★
One Humanity or Social Science course or a free option
At least one Humanity or Social Science course must be taken either in Second or Third year.

Honours Programs

Honours in Physics

In the experimental and theoretical physics options mentioned below, during the vacation between Third year and Fourth year, students are required to familiarize themselves with a specialized topic; they will deliver a talk on that subject during Fourth year. A comprehensive examination (one course credit) is given in physics and related mathematics, and the student must submit a thesis on his work carried out in Physics 75.497★, 75.498★ or 75.499. The fulfillment of the requirements stated in this paragraph is the responsibility of the student.

Honours in Physics—Experimental Options

Typical pattern (normal departmental requirements):

First Year

As for Physics Major Course, or with Mathematics 69.100, and Geology 67.100 or Biology 61.100 in the

Physics Major Course replaced by Mathematics 69.102, 69.112

Second Year

Physics 75.211★, 75.221★, 75.232★, 75.242★
 Mathematics 69.203 and 69.217★ (if Mathematics 69.100 taken in First year); or
 Mathematics 69.208★ and 69.218★ and one half course free option (if Mathematics 69.102 and 69.112 taken in First year)
 Mathematics 69.258★ or Science 60.200★
 One Humanity or Social Science course or a free option

Third Year

Physics 75.300, 75.338★, 75.361★, 75.362★, 75.381★ and 75.386
 One Humanity or Social Science course or a free option

At least one Humanity or Social Science course must be taken either in Second or Third year.

Fourth Year, Option 1

Physics 75.401★, 75.437★, 75.477★, 75.478★
 Physics 75.400 or 75.407★ or 75.408★
 Physics 75.458★ or 75.462★ or 75.468★
 Physics 75.499 or 75.497★ or 75.498★
 Plus sufficient approved Physics and/or Mathematics options to raise the total to five courses.

Fourth Year, Option 2

Physics 75.401★, 75.437★, 75.477★
 Physics 75.400 or 75.407★ or 75.408★
 Physics 75.428★ or 75.458★ or 75.482★ or 75.491★ or 75.492★
 Physics 75.499 or 75.497★ or 75.498★
 Plus sufficient approved Physics and/or Mathematics options to raise the total to five courses

Honours in Physics—Theoretical Option

First Year

Physics 75.100
 Chemistry 65.100
 Mathematics 69.102, 69.112
 One Social Science or Humanity course

Second Year

Physics 75.211★, 75.221★, 75.232★, 75.242★
 Mathematics 69.208★, 69.218★
 One of Mathematics 69.258★ or Science 60.200★
 One Humanity or Social Science course or a free option
 One half course free option

Third Year

Physics 75.307★ or 75.308★
 Physics 75.338★, 75.361★, 75.362★, 75.381★, 75.386
 One of Engineering 94.366★ or Mathematics 69.386★
 One Humanity or Social Science course or a free option

At least one Humanity or Social Science course must be taken either in Second or Third year.

Fourth Year

Physics 75.407★ or 75.408★
 Physics 75.437★, 75.447★, 75.477★, 75.478★
 Physics 75.497★ or 75.498★ or 75.499
 Plus sufficient approved Physics and/or Mathematics options to raise the total to five courses

Combined Honours in Geology and Physics

A grade of C– or better in both Geology 67.100 and Physics 75.100, and overall Honours standing are required before admittance to the program.

Course requirements are as follows:

First Year

Physics 75.100
 Geology 67.100
 Mathematics 69.100
 Chemistry 65.100
 One Humanity or Social Science course

Second Year

Physics 75.211★, 75.221★, 75.232★, 75.242★
 Geology 67.221★, 67.222★, 67.228★, 67.281★
 Mathematics 69.202
 Field camp

Third Year

Physics 75.300, 75.361★, 75.362★
 Geology 67.325, 67.385
 One free option
 Optional field camp

A reading proficiency in Russian, German or French must be demonstrated in the Third year. (Potential graduates in 1975-76 shall have satisfied the language requirement in either department.)

Fourth Year

Physics 75.338★
 One half-credit Physics course at the 400 level
 Geology 67.481★

One half-credit Geology course at the 400 level
 Physics 75.499 or Geology 67.498
 One free option
 One Humanity or Social Science course

A thesis shall be presented and defended orally before the Interdepartmental Committee.

Double Honours Program: B.Sc. Honours

Mathematics and Physics

Entrance criteria

Successful completion of First year with a B+ or better in Mathematics 69.102, 69.112 and Physics 75.100 or permission of both departments.

Course requirements

First Year

- (a) Mathematics 69.102, 69.112
- (b) Physics 75.100
- (c) Chemistry 65.100 or Biology 61.100
- (d) One Arts elective

Note: It is highly recommended that Science 60.200 be taken in the First year in addition to the above courses.

Second Year

- (a) Mathematics 70.200, 70.210, 70.260
- (b) Physics 75.211★, 75.221★, 75.232★, 75.242★
- (c) One half Arts elective

Third Year

- (a) Mathematics 70.301★, 70.302★, 70.310
- (b) Physics 75.307★, 75.338★, 75.361★, 75.362★
- (c) Mathematics 70.345★ or Physics 75.381★; one half Mathematics or Physics course at the 300 level; Mathematics 70.307★ together with Physics 75.388★, or Physics 75.386.

Fourth Year

- (a) One Mathematics course at the 400 level (or equivalent)
- (b) Physics 75.437★, 75.447★, 75.477★, 75.478★
- (c) Two half courses at the 300 or 400 level in Mathematics or Physics
- (d) Honours project in Mathematics or Physics (half course)
- (e) One half Arts elective

Language

Candidates for the degree of Bachelor of Science with Honours in Physics or Combined Honours in Mathematics and Physics or Geology and Physics must show a reading knowledge of French, German, or Russian. Requests for examination should be submitted to the Chairman of the Department by February 15. Application for examination is the responsibility of the student.

Graduate Program

Candidates for the Doctor's and Master's degrees are accepted for full-time work in Physics under the supervision of members of the Department. The requirements and general regulations are given in the Graduate Studies and Research Calendar.

Courses Offered

Physics 75.010

Pre-University Physics

Day division: Lectures three hours a week, laboratory, demonstrations and problems three hours a week.

Physics 75.100

Introductory Physics

This course introduces mechanics, the properties of matter, thermodynamics, electricity and magnetism, wave motion, optics, acoustics and some modern topics. A balance is maintained between depth and range.

Prerequisites: Mathematics 69.010 or equivalent, Physics 75.010, or permission of the Department.

Day division: Lectures three hours a week, laboratory three hours a week.

Evening division: Two one and a half hour lectures a week, laboratory three hours a week.

Physics 75.105

Introductory Physics

An alternate First year course for students who lack the prerequisite for Physics 75.100 or who intend to take their major work in a department not requiring Physics 75.100. Prerequisite: Mathematics 69.010 or equivalent.

Day division: Lectures three hours a week, laboratory three hours a week.

Physics 75.150

Elementary Astronomy for Science and Engineering Students

A survey course in astronomy, astrophysics and cosmology, giving a descriptive treatment of the known stellar, galactic and extra-galactic systems. A review of the modern ideas concerning the structure, origin and

evolution of the universe. Fields of current interest in astronomy, including the study of quasars, pulsars and supernovae will be discussed. Additional topics include the development of space age astronomy and studies of the possible existence of extra-terrestrial life. A 10-inch telescope is available for student use. Some of the lectures may be given with Physics 75.190. For students of Science and Engineering.

Prerequisite or co-requisite Physics 75.100 or Physics 75.105 or Science 60.110.

Physics 75.190

Introduction to Astronomy

A survey course in astronomy, astrophysics and cosmology, giving a descriptive treatment of the known stellar, galactic and extra-galactic systems. A review of the modern ideas concerning the structure, origin and evolution of the universe. Fields of current interest in astronomy, including the study of quasars, pulsars and supernovae will be discussed. Additional topics include the development of space age astronomy and studies of the possible existence of extra-terrestrial life. A 10-inch telescope is available for student use.

Evening division: Two one and a half hour lectures a week.

Physics 75.195

Physics of Music

The physics of musical phenomena. Sound production, propagation, frequency, intensity. Characteristics of musical sounds, pitch, harmonics, attack. Musical instruments, qualities and behaviours, organ, piano, strings, brass, etc. The ear, physiology, behaviour, limitations. Building acoustics. Electronic recording, reproduction and production of music. Primarily for non-Science Majors and Honours.

Prerequisites: Permission of the Department. Some knowledge of either music and musical notation, or elementary physics is desirable.

Physics 75.211★

Mechanics and Properties of Matter

Classical mechanics of a particle and rigid body. Classical properties of matter. Relativistic mechanics.

Prerequisites: Physics 75.100, Mathematics 69.100 or 69.102 and 69.112. (Physics 75.105 and Mathematics 69.101 are also acceptable provided a minimum grade of B- is obtained in these courses.)

Text: Kittel, Knight and Ruderman, *Mechanics*.

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Physics 75.221★

Wave Motion and Optics

Modes of oscillating systems with many degrees of freedom; damped, driven harmonic oscillator; physical optics based on oscillator model (dispersion, absorption, scattering); Huygen's principle; reflection and transmission as coherent scattering; interference, coherence

length, diffraction, polarization, double refraction. Geometrical optics.

Prerequisites: Physics 75.100, Mathematics 69.100 or 69.102 and 69.112. (Physics 75.105 and Mathematics 69.101 are also acceptable provided a minimum grade of B- is obtained in these courses.)

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Evening division, First term: Two one and a half hour lectures a week, laboratory three hours a week.

Physics 75.230

Electricity and Magnetism

The theory of electric and magnetic fields, and electromagnetism and electromagnetic induction are covered in some detail. D.C. and A.C. circuit theory is presented together with a brief introduction to conduction in solid conductors, semiconductors and insulators. Solid state and vacuum devices are discussed. Examples of interest to students of biology, chemistry and geology as well as to students of physics are stressed. The laboratory deals primarily with electrical measurement.

Prerequisites: Physics 75.100 and Mathematics 69.100. (Physics 75.105 and Mathematics 69.101 are also acceptable provided a minimum grade of B- is obtained in these courses.)

Texts: Kipp, *Electricity and Magnetism, Revised Edition; Laboratory Instructions for Physics 75.230.*

Day division: Lectures three hours a week, laboratory three hours a week.

Physics 75.232★

Electricity and Magnetism

Electrostatics, dielectric materials, electrostatic energy, electrostatic instruments. Steady currents and properties of electrical conductors, conductivity. Magnetic effects of currents and moving charges, magnetostatics. Electromagnetic induction and varying currents. Magnetic materials and magnetic measurements. Direct current measurements. Alternating current theory and measurements. Resonant circuits. Systems of units.

Prerequisites: Physics 75.100, Mathematics 69.100 or 69.102 and 69.112. (Physics 75.105 and Mathematics 69.101 are also acceptable provided a minimum grade of B- is obtained in these courses.)

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

Physics 75.233★

Electricity and Magnetism for Engineering Students

Electrostatics, fields and potentials; magnetic fields, electromagnetic induction.

Prerequisites: Science 60.110 and Mathematics 69.100.

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Physics 75.242★

Heat and Thermodynamics

Heat and kinetic theory, method of thermodynamics and application of laws of thermodynamics.

Prerequisites: Physics 75.100, Mathematics 69.100 or 69.102 and 69.112. (Physics 75.105 and Mathematics 69.101 are also acceptable provided a minimum grade of B- is obtained in these courses.)

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

Evening division, Second term: Two one and a half hour lectures a week, laboratory three hours a week.

Physics 75.291★

Physics of the Environment

This course is concerned with how Physics can be used to measure environmental pollution and eventually control it. It is based on examples from recent scientific articles, but is at a level so that those who are taking or who have taken First year Physics can understand it. Typical examples of topics covered are the use of lasers to find the size of air levels, a description of sound and noise pollution, the mechanics of oil spills, the use of radiation to purify water, etc.

Prerequisite: Physics 75.100, 75.105, or permission of the Department.

Evening division, First term: Three hours a week.

Physics 75.292★

Physics of the Environment

This course is concerned with how Physics can be used to measure environmental pollution and eventually control it. It is based on examples from recent scientific articles, but is at a level so that those who are taking or who have taken First year Physics can understand it. Typical examples of topics covered are the use of lasers to find the size of air levels, a description of sound and noise pollution, the mechanics of oil spills, the use of radiation to purify water, etc.

Prerequisite: Physics 75.100, 75.105, or permission of the Department.

Evening division, Second term: Three hours a week.

Physics 75.300

Third Year Laboratory

The student is expected to complete a small number of projects. These are closely supervised at the beginning of the year, but the student is encouraged to become as independent as possible. Some of the fields for which apparatus is available are: physical optics, optical spectroscopy, electronics, digital techniques, nuclear spectroscopy, cosmic rays, microwaves, solid state phenomena, electrical measurements.

Laboratory Techniques: Basic Technical operations (mechanical, electronics, etc.) used in the design and construction of research apparatus.

Prerequisite: Permission of the Department.

Text: Barford, *Experimental Measurements: Precision, Error and Truth*.

Day division: Laboratory six hours a week, workshop three hours a week.

Physics 75.301★

Advanced Physics Laboratory for Non-Physics Science Students

This course is designed to initiate the student into the use of instrumentation and help him understand the physical principles involved in making key measurements. In consultation with an adviser from the student's Major department, the instructor of this course will endeavour to design the program to meet the needs of each student. Available apparatus as in Physics 75.300. Prerequisite: Permission of the Department.

Day and Evening divisions, First term: Laboratory six hours a week, plus tutorials.

Physics 75.302★

Advanced Physics Laboratory for Non-Physics Science Students

This course is designed to initiate the student into the use of instrumentation and help him understand the physical principles involved in making key measurements. In consultation with an adviser from the student's Major department, the instructor of this course will endeavour to design the program to meet the needs of each student. Available apparatus as in Physics 75.300. Prerequisite: Permission of the Department.

Day and Evening divisions, Second term: Laboratory six hours a week, plus tutorials.

Physics 75.307★

Selected Experiments from Physics 75.300

Prerequisite: Permission of the Department.

Text: Barford, *Experimental Measurements: Precision, Error and Truth*.

Day and Evening divisions, First term: Laboratory six hours a week.

Physics 75.308★

Selected Experiments from Physics 75.300

Prerequisite: Permission of the Department.

Text: Barford, *Experimental Measurements: Precision, Error and Truth*.

Day and Evening divisions, Second term: Laboratory six hours a week.

Physics 75.338★

Electromagnetism

Vector notation, vector algebra, divergence and Stokes' theorems, the Laplacian. Electrostatic field and magnetostatics. Examples involving Laplace's and Poisson's equations; vector potential; Faraday's laws of induction; Maxwell's equations. Propagation of plane electromagnetic waves in vacuum and dielectric media.

Prerequisite: Physics 75.232★, or permission of the Department.

Text: Lorrain and Corson, *Electromagnetic Fields and Waves, Second Edition*.

Day division, Second term: Three hours a week.

Physics 75.361 ★**Modern Physics**

The course is designed to provide a logical transition from classical to modern physics. Elements of special relativity. Kinetic theory of gases; determination of the mass and charge of subatomic particles. Rutherford scattering, atomic models. Failure of classical mechanics. Photoelectric effect and Compton scattering. Bohr's theory of the hydrogen atom. Atomic energy states, optical and x-ray spectra. X-ray scattering and diffraction. Elements of nuclear physics and particle physics.

Prerequisites: Physics 75.211★, 75.222★, 75.232★, 75.241★; Mathematics 69.207★, 69.208★, 69.217★ or Mathematics 69.202 or 69.203 and 69.217★; or permission of the Department.

Day division, First term: Lectures three hours a week.

Physics 75.362 ★**Elements of Quantum Mechanics**

Analysis of interference experiments with waves and particles; fundamental concepts of quantum mechanics. Schrödinger equation; angular momentum, atomic beams; hydrogen atom; atomic and molecular spectroscopy; Pauli principle; simple applications in the physics of elementary particles.

Prerequisite: Physics 75.361★, or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.364 ★**Modern Physics**

This course is designed primarily for Engineering students and for students not Majoring in Physics. Rapid review of Classical physics; special relativity. Particle aspects of electromagnetic radiation. Wave aspects of material particles. Atomic structure. Production of x-rays and x-ray spectra. Molecular binding, solid state physics; nuclear physics. Applications: fission and fusion reactors, coherent optics (lasers, etc.), and semi-conductors. Brief description of cosmic rays and elementary particle physics.

Prerequisites: Physics 75.233★ and Mathematics 69.201 for Engineering students, or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.381 ★**Mathematical Physics I**

Vector calculus; curvilinear coordinates; irrotational, solenoidal vector fields; theorems of Gauss, Stokes; introductory fluid mechanics. Introduction to Lagrangian and Hamiltonian mechanics; Poisson brackets, tensors and dyads; rigid body rotations; coupled systems and normal coordinates; relativistic dynamics.

Prerequisites: Physics 75.211★, 75.241★, 75.222★, 75.232★, Mathematics 69.207★, 69.208★, 69.217★ or 69.203 and 69.217★, or permission of the Department.

Day division, First term: Lectures three hours a week.

Physics 75.386**Introduction to Theoretical Physics**

Theoretical techniques common to all branches of modern physics will be introduced. Particular emphasis will be placed on methods used in quantum mechanics with problems selected from wave propagation, electromagnetic theory, scattering theory and reactor physics. These will include Fourier series and integrals, elementary generalized functions, contour integration, residue calculus, Fourier and Laplace transforms, methods for solving linear ordinary and partial differential equations, and Green's functions.

Prerequisite: Concurrent registration in Physics 75.381★, or permission of the Department.

Day division: Lectures three hours a week.

Physics 75.388 ★**Mathematical Physics II**

Linear differential equations of second order. Fourier series and integrals, elementary generalized functions; Fourier and Laplace transforms; Green's functions, with applications; scalar and vector potentials; Helmholtz' theorem; boundary value problems.

Prerequisites: Physics 75.381★ or Mathematics 69.341 or 70.341 (may be taken concurrently); Mathematics 69.307★; or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.400**Fourth Year Laboratory**

The student is expected to complete two detailed projects involving some original planning both in concept and experimental technique. Projects are similar to Physics 75.300 but are of a more sophisticated nature.

Prerequisite: Physics 75.300 or 75.307★ or 75.308★.

Day division: Laboratory four hours a week.

Physics 75.401**Modern Experimental Methods**

This course is to help make the transition from undergraduate to professional experimentation. Concept of resolution. Limitations of some elementary statistical methods. Curve fitting by simple and sophisticated techniques in a variety of situations. Physical limitations on accuracy; thermal noise, quantization noise, environmental factors. Their partial elimination by electronic and numerical methods. Some digital methods including analog to digital conversion and its converse; computers. A number of high precision experiments involving electronic and digital techniques will be analyzed in detail.

Prerequisites: Physics 75.211★, 75.222★, 75.232★, 75.241★, Mathematics 69.207★, 69.208★, 69.217★, or 69.203 and 69.217★, 69.258★, Physics 75.300 or 75.307★ or 75.308★; or permission of the Department.

Day division, First term: Lectures three hours a week.

Physics 75.407 ★

Selected Experiments from Physics 75.400

Prerequisite: Physics 75.300 or 75.307 ★ or 75.308 ★.
Day division, First term: Laboratory six hours a week.

Physics 75.408 ★

Selected Experiments from Physics 75.400

Prerequisite: Physics 75.300 or 75.307 ★ or 75.308 ★.
Day division, Second term: Laboratory six hours a week.

Physics 75.428

Modern Optics

Diffraction theory, coherence, Fourier optics spatial filtering, holography and its applications; laser theory: stimulated emission, cavity optics, modes; gain and bandwidth; design and characteristics of atomic and molecular gas lasers. Some sections of this course will be given in common with Engineering 97.582 ★.

Prerequisites: Physics 75.361 ★ and 75.362 ★, or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.437 ★

Electromagnetic Radiation

Electromagnetic wave propagation in a vacuum, dielectrics, conductors, and ionized gases; reflection, refraction, polarization at the plane boundary between two media; waveguide and transmission line propagation dipole and quadrupole radiation fields; antenna systems. Electromagnetic mass, radiation pressure. Tensor notation, transformation of the electromagnetic fields.

Prerequisites: Physics 75.381 ★ and 75.386 (except for Mathematics and Physics combined Honours students), or permission of the Department.

Text: Lorrain and Corson, *Electromagnetic Fields and Waves*.

Day division, First term: Lectures three hours a week.

Physics 75.447 ★

Statistical Physics

Equilibrium statistical mechanics and its relation to thermodynamics. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac are derived, and applied in appropriate physical situations. Fluctuations. Kinetics and transport processes, including the Boltzmann transport equation and some of its applications.

Prerequisites: Physics 75.361 ★, 75.362 ★, and 75.477 ★ to be taken concurrently; or permission of the Department.

Day division, First term: Lectures three hours a week.

Physics 75.457 ★

Ionization and Breakdown in Gases

Review of kinetic theory and atomic structure; elastic and inelastic collisions; charged particles in gases at low and high E/p ; amplification and quenching mechanisms. Instrumentation applications. Breakdown mechanisms; experimental methods. Coronas. Propagation of electromagnetic waves in a plasma. Plasma oscillations. Problems in plasma physics.

Prerequisites: Physics 75.361 ★ and 75.338 ★, or permission of the Department.

Not offered 1975-76.

Physics 75.458 ★

Solid State Physics

An introduction to solid state physics. Topics to include crystal structure, phonons and lattice vibrations, conductors, semiconductors, insulators and superconductivity.

Prerequisites: Physics 75.361 ★ and 75.362 ★ or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.462 ★

Particle Physics

Description of properties of elementary particles; pions, kaons and baryons. Conservation laws, invariance principles and quantum numbers. Resonances observed in final state interactions. Three body phase space; Dalitz plot. SU_3 symmetry scheme for classifying elementary particles, mass formulae and electromagnetic mass differences. Weak interactions; decay of neutral kaons; CP violation in neutral K decays.

Prerequisite: Physics 75.477 ★, or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.468 ★

Nuclear Physics

Ground state properties of nuclei, nuclear forces, nuclear levels. Qualitative treatment of Fermi gas model, liquid drop model, shell model and collective model. Alpha, beta and gamma radioactivities. Fission. Passage of particles through matter. Particle detectors. Elements of neutron physics and nuclear reactors.

Prerequisites: Physics 75.361 ★ and 75.362 ★; or permission of the Department.

Day division, Second term: Lectures three hours a week.

Physics 75.477 ★

Introduction to Quantum Mechanics I

This course concentrates mainly on the basic interpretative postulates of quantum mechanics. These fundamental concepts are applied to simple one dimensional problems, and angular momentum theory.

Prerequisites: Physics 75.362 ★, 75.386, or permission of the Department.

Texts: E. Merzbacher, *Quantum Mechanics*.

Day division, First term: Lectures three hours a week.

Physics 75.478 ★

Introduction to Quantum Mechanics II

Scattering theory and application; bound state problems; approximation methods.

Prerequisite: Physics 75.477 ★, or permission of the Department.

Texts: E. Merzbacher, *Quantum Mechanics*.

Day division, Second term: Lectures three hours a week.

Physics 75.482 ★

Diffusion and Flow Phenomena

Brief review of orthogonal coordinate systems; divergence, Laplacian etc., in various coordinate systems; continuity equation; flow equations (heat, current, neutrons); diffusion of thermal neutrons (collisional energy transfer, scattering probability, statistical energy degradation); Fermi age-velocity theory; fast neutron flow equation; thermal multiplication pile; criticality criteria; solutions of flow and continuity equations: heat flow (various geometries and boundary conditions), neutron flow (moderation by graphite block).

Prerequisites: Physics 75.381 ★, 75.386, or permission of the Department.

Not offered 1975-76.

Physics 75.491

Astronomy and Astrophysics

Introduction to stellar astronomy, binary stars, stellar atmospheres, variable stars, stellar structure, stellar evolution, introduction to radio astronomy, interstellar matter and gaseous nebulae, supernovae and pulsars, galactic structure, quasars, cosmology.

Prerequisites: Physics 75.361 ★ and 75.362 ★, or permission of the Department.

Not offered 1975-76.

Physics 75.492 ★

Space Physics

Magnetic fields in cosmic physics, induced electric fields; motion of charged particles in electric and magnetic fields; hydromagnetic waves; experimental techniques for space physics; solar physics; structure and physics of the upper atmosphere; the geomagnetic field, aurora and geomagnetic storms; interaction of solar wind with magnetic fields; trapped radiation zones; cosmic rays in space.

Prerequisite: Physics 75.437 ★, or permission of the Department.

Evening division, Second term: Lectures three hours a week.

Physics 75.497 ★

Fourth Year Project

Same as Physics 75.499 except that it extends over the First term only.

Prerequisite: Permission of the Department.

Day division, First term: A minimum of six hours laboratory or private study a week.

Physics 75.498 ★

Fourth Year Project

Same as Physics 75.499 except that it extends over the Second term only.

Prerequisite: Permission of the Department.

Day division, Second term: A minimum of six hours laboratory or private study a week.

Physics 75.499

Fourth Year Project

These are advanced projects of an experimental or theoretical nature with an orientation towards research. The presentation of a thesis is required; the fulfillment of this requirement is the responsibility of the student.

Prerequisite: Permission of the Department.

Day division: A minimum of six hours laboratory or private study a week.

Courses Planned for Summer School and Evening Division, 1975-78*Summer 1975*

75.010, 75.100, 75.190, 75.221 ★, 75.232 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.338 ★, 75.362 ★, 75.477 ★.

Evening Division 1975-76

75.010, 75.100, 75.190, 75.221 ★, 75.242 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.491 ★.

Summer 1976

75.105, 75.190, 75.211 ★, 75.242 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.361 ★, 75.381 ★, 75.477 ★.

Evening Division 1976-77

75.010, 75.105, 75.190, 75.211 ★, 75.232 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.492 ★.

Summer 1977

75.010, 75.100, 75.190, 75.221 ★, 75.232 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.338 ★, 75.362 ★, 75.477 ★.

Evening Division 1977-78

75.010, 75.100, 75.190, 75.221 ★, 75.242 ★, 75.301 ★, 75.302 ★, 75.307 ★, 75.308 ★, 75.491 ★.

Psychology

B.Sc. in Psychology

The department of Psychology offers a program leading to the Honours Bachelor of Science degree. Full details of the department's offerings may be found in the Faculty of Arts section of the calendar beginning on page 174. Required courses for the B.Sc. with Honours in Psychology, in the sequence which it is strongly suggested they be taken, are as follows:

First Year

1. Mathematics 69.100 or 69.101;
2. one of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105;
3. Psychology 49.100 as the arts elective;
4. two additional credits from Science or Arts.

Required courses beyond First year, and the sequence in which it is strongly suggested they be taken, are as follows:

Second Year

1. Psychology 49.200★, 49.220★, 49.250★, and 49.270★;
2. Mathematics 69.250 (or 69.217★ and either 69.258★ or 69.257★ for students planning to take further courses in Mathematics);
3. a course in the humanities or social sciences other than Psychology;
4. optional course.

Note: Students who wish to substitute Psychology 49.305 in 2 must offer in 4 a course above the First year level in Biology, Mathematics, Chemistry or Physics chosen with the approval of the Department of Psychology.

Third Year

1. One Honours sequence credit (Psychology 49.325, 49.355★ and 49.356★, or 49.375★ and 49.376★);
2. one of Psychology 49.201★, 49.202★ and 49.204★ and one of Psychology 49.300★-303★;
3. one optional credit in Psychology;
4. a course credit in the humanities or social sciences other than Psychology;
5. a course credit above the First year level in Biology, Mathematics, Chemistry or Physics chosen with the approval of the Department of Psychology.

Fourth Year

1. Psychology 49.498;
2. one credit in Psychology chosen from the following Science continuation courses: 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.271★, 49.321★, 49.330★, 49.331★, 49.332★, 49.380★;
3. one optional credit in Psychology;
4. one course credit above the First year level in Biology, Mathematics, Chemistry or Physics;
5. one optional credit.

Interfaculty Courses

Computing Science

Co-ordinator

R.J.A. Buhr, *Department of Systems Engineering*

General Information

The Computing Science courses described herein, provide the student with the opportunity of taking a strong, applications-oriented Minor program in Computing Science together with a Major program in fields such as Biology, Chemistry, Commerce, Economics, Engineering, Geology, Mathematics, Physics, Political Science, Psychology, or Sociology. Carleton does not offer a degree program in Computing Science *per se*. It may be possible, however, for a Carleton graduate with a strong Minor in Computing Science to proceed directly to a graduate program in Computing Science or a related area.

Carleton's Computing Science program takes full advantage of the unique resources of the University's Computer and Data Processing Centre. The time sharing, remote batch and normal batch facilities of the Xerox Sigma-9 computer system are available to and are used by students in the program. Features of the system include: a two-level Archive file management system; comprehensive facilities for interactively building and editing data and program files; availability of FORTRAN, FLAG, COBOL, SAMOS machine and assembly language and APL language processors as well as some other more specialized processors such as IFTRAN, SNOBOL, NEST and EDMS, and comprehensive subroutine libraries and special software packages in various application areas.

Minor Programs

Minor programs are listed below in the areas of Programming and Software Organization, Software and Hardware Engineering, Management and Business Applications, Scientific Applications and Theory of Computing Science. A Minor program is assumed to consist of a minimum of eight half courses. These programs are not necessarily exhaustive in their coverage of either possible courses or possible programs. Furthermore, in some cases students may not be able to take all of the courses listed in an area due to timetable or elective constraints in their own Departments. In every case a student should discuss his proposed program with his own Department to ensure both its suitability and its feasibility.

As shown below students must normally take at least one full or two half First year level computing courses; the purpose of this is to introduce them to FORTRAN and ASSEMBLER or to COBOL and ASSEMBLER, depending on their interests. The FORTRAN and ASSEMBLER

requirement is satisfied by the following course pairs and single courses, which are considered to be equivalent: Computing Science 95.103 ★ and 95.102 ★; Computing Science 95.101 ★ and 95.102 ★; Architecture 79.110 and Computing Science 95.102 ★; Engineering 94.165. The COBOL and ASSEMBLER requirement is satisfied by either Accounting/Economics 41/43.390 or by the pair of courses Computing Science 95.102 ★ and 95.104 ★. Students with a broad interest in a professional career in Computing should try to satisfy the FORTRAN, COBOL and ASSEMBLER requirements, for example by taking Computing Science 95.102 ★, 95.103 ★ and 95.104 ★ or Engineering 94.165 and Computing Science 95.104 ★.

Students with suitable programming experience may find it possible to proceed directly into second level courses without taking first level prerequisites, by demonstrating knowledge of the material to the satisfaction of the Computing Science Co-ordinator.

Note that certain courses in the Minor programs have non-Computing Science courses as prerequisites.

Some Possible Minor Programs in Computing Science

Minor Program Areas

1. Programming and Software Organization
2. Software and Hardware Engineering
3. Management and Business Systems
4. Scientific applications
5. Theory of Computing Science

Course	Minor Program Area				
	1	2	3	4	5
— Full first year course or equivalent	—	—	all	—	—
95.201 ★ Introduction to Systems Software	2	—	*	*	*
95.204 ★ Programming Languages I	1	1	1	1	1
95.207 ★ Programming Languages II	*	*	2	2	2
95.302 ★ Compiler Construction	3	*	—	—	5
95.303 ★ Real-Time and Hybrid Computing	*	2	—	—	—
95.304 ★ File Structures and Data Bases	4	*	4	4	*
95.310 ★ Information Systems Engineering	—	—	3	—	—
95.366 ★ Computer Applications	—	—	—	*	—
95.384 ★ Information Structures	*	—	*	*	3
95.385 ★ Discrete Structures and Applications	—	3	—	*	4
95.386 ★ Numerical Analysis	—	—	—	3	*
95.401 ★ Operating Systems	6	4	*	*	*
95.457 ★ Introduction to Computer Architecture	—	6	—	—	—
95.461 ★ Programmable Logic Systems	—	*	—	—	—
95.466 ★ Switching Circuits	—	5	—	—	—
95.480 ★ Introduction to Software Engineering	5	*	5	5	—
95.481 ★ Software Engineering Project	*	*	6	6	—
95.485 ★ Theory of Automata	—	—	—	—	6
95.486 ★ Numerical Analysis	—	—	—	*	*

Note. Numbers in the columns of this table indicate nominal course sequences. Asterisks indicate other courses of special interest.

Graduate Courses

Students should take note of courses at the graduate level in the Departments of Systems Engineering and of Mathematics. With special permission advanced undergraduates may be allowed to take certain of the graduate courses offered by these Departments to strengthen a Minor program in Computing Science. Examples of courses available are:

Systems Engineering

- 94.517 Queueing, Scheduling, and Control of Information Systems
- 94.518 Topics in Information Systems Engineering
- 94.557 Fundamentals of Discrete Systems
- 94.558 Digital Machine Architecture
- 94.560 Methods for Engineering Applications of Digital Computers
- 94.571 Real Time Systems
- 94.572 Topics in Software Engineering
- 94.573 Integrated Data Base Systems
- 94.574 Software Engineering

Mathematics

- 70.586 Numerical Analysis
- 70.587 Formal Languages and Syntax Analysis

Joint Systems Engineering / Mathematics Courses

- 70/94.582 Topics in Information and Systems Science

Courses Offered

Note:

In some cases courses listed as being offered in the Evening division may be scheduled at 4.30 p.m.

In all courses with programming assignments students will usually find it necessary to be on campus at other than the scheduled lecture periods to make use of computing facilities.

Computing Science 95.101★

Introduction to Computers for the Social Sciences

This course is intended to give Arts students an understanding of programming logic, the ability to write algorithms and flowcharts, a working knowledge of FORTRAN IV, and experience in using SPSS as an example of a library program. Topics covered include: Simple concepts of how a computer works and technicalities of using the terminal; Logic (algorithms and flowcharts); Introduction to FORTRAN—conditionals, branching, logical IF'S, DO loops, lists; tables, subscripts, dimensioning, input and output, subroutines; SPSS. Credit will not be given for both this course and Computing Science 95.103★.

Text: Edwards, *Flowcharting and Fortran IV*; various manuals relating to the campus computer system.

Day and Evening divisions, First term: Lectures three hours a week.

S. Richer

Computing Science 95.102★

Introduction to Computing Science

This course is intended to be a continuation of Computing Science 95.101★ or 95.103★, for those students who are interested in taking subsequent Computing Science courses. It may also be taken on its own, however, as an introduction to assembler programming and machine concepts. An introduction to the organization and operation of computer systems is given, based on the SAMOS pseudo-computer. The concepts of assemblers are explained, using the SAMOSAL assembler. Lectures and programming exercises will introduce the students to a variety of topics, including indexing, indirect addressing, subroutines, data structures and sorting and searching. (Also listed as Science 60.202★.)

Text: Forsythe, Keenan, Organick, Stenberg, *Computer Science—A First Course*.

References: Various manuals relating to the campus computer system.

Day division, First term and Evening division, Second term: Lectures two hours a week, workshop two hours a week.

A.R. Donaldson, F. Radford

Computing Science 95.103★ (95.200★)

Introduction to Scientific Computing

A first course in computer programming primarily for students in the Faculty of Science. Introduction to computers and algorithms. Use of the Carleton timesharing system. Introduction to FORTRAN programming through examples taken from mathematics and science. Basic procedures: summing, sorting, looping. Iterative solutions to problems. Non-numeric programming. Random numbers. Simulation of simple physical systems. The computer system: inside the computer. Use of the batch system. Efficient and structured programming. (Also listed as Science 60.200★.) Prerequisites: Mathematics 69.100 or 69.101; which may be taken concurrently.

Credit will not be given for both this course and Computing Science 95.101★.

Texts: McCracken, *A Guide to FORTRAN IV Programming, Second Edition*.

References: Various manuals relating to the computer system on campus.

Day and Evening divisions, First term: Evening division, Second term: Lectures three hours a week.

D.C. Coll, J.E. Neilson

Computing Science 95.104★ (95.206★)

Introduction to Data Processing

This course is designed to give students an understanding of data processing by teaching COBOL and illustrating its use in detailed case studies. Besides COBOL, emphasis will be placed on methods of analysis, specification and design. The following topics are covered:

Review of operational methods in data processing, implementation and design methods; the COBOL language; sequential file processing including file design, creation, update and backup; report generation, sorting and merging techniques, tape file maintenance; direct access file processing; introduction to data base techniques. Programming assignments in COBOL will be required. (Also listed as Science 60.206★).

Prerequisite: Computing Science 95.102★ or Engineering 94.165 or permission of the instructor.

Credit cannot be obtained for both this course and Accounting/Economics 41/43.390.

Text: Philippakis and Kazmier, *COBOL for Business Applications*.

Day division, Second term: Evening division, First term: Lectures three hours a week.

J.E. Neilson

Computing Science 95.201★

Introduction to Systems Software

This course introduces students to the methods and principles underlying systems software organization through the medium of assembler programming on the XSAMOS pseudo-machine; its purpose is to prepare students for the study of compilers, operating systems, etc. Control structures in assembler programming, including branching, comparison, looping and branch tables. Creation and processing of basic data structures including arrays, sorted and unsorted symbol tables, simple linked lists and binary trees. The assembly process. Subroutines, co-routines, macros and parameter passing; re-entrancy and recursion. Input/output processing using channels and interrupts; overlap of input/output and computation. Comparison of the XSAMOS denary pseudo-machine with modern binary machines with respect to data representation, the instruction set and input/output organization.

Prerequisite: Computing Science 95.102★ or Engineering 94.165 or Accounting/Economics 41/43.390, or equivalent courses or experience.

Texts: Gear, *Computer Organization and Programming*; The XSAMOS/SAMOSAL Manual.

Reference: Maurer, *Programming: An Introduction to Computer Techniques*.

Day division, First term and Evening division, Second term: Lectures three hours a week.

L.R. Morris

Computing Science 95.204★

Programming Languages I

This course provides an opportunity for students to develop their programming abilities to an intermediate level in either FORTRAN or COBOL while at the same time studying principles of data types, control and data structures, run-time environments, input/output facilities, special features and capabilities of a variety of programming languages, including FORTRAN, COBOL, APL and PL/I. A major programming assignment will be required in either FORTRAN or COBOL together with minor ones in at least one of the other languages. The

major assignment will be on a problem in the student's area of specialization. Laboratory sessions will be split into two sessions, one for COBOL and one for FORTRAN, to explore advanced features of these languages. Emphasis in the laboratories will be on details of the language while emphasis in the lectures will be on principles and examples.

Prerequisites: 94.165; or 95.101★ and 95.102★; or 95.102★ and 95.103★; or 95.102★ and 95.104★; or 41/43.390; or equivalent courses or experience.

Text: Elson, *Concepts of Programming Languages*.

References: Xerox Reference Manuals for FLAG, COBOL and APL; texts for Computing Science 95.103★ and 95.104★; Gilman and Rose, *APL/360—An Interactive Approach*.

Day division, First term, Evening division, Second term: Lectures two hours a week, laboratory two hours a week.

D.A. Thomas

Computing Science 95.207★

Programming Languages II

This course is a continuation of 95.204★ and aims to increase in both breadth and depth the student's familiarity with both principles and practice of a variety of general and special purpose programming languages and processors. Emphasis is on the significance of the major features of the languages, with respect to the major application areas of scientific computing, data processing and non-numeric processing. Students will be given the opportunity of concentrating their practical work in their area of specialization.

Prerequisite: Computing Science 95.204★.

Day division, Second term: Lectures three hours a week.

R.J.A. Buhr

Computing Science 95.302★

Compiler Construction

This course is intended to present a variety of techniques that are used in compilation of programming languages. The following topics are covered: symbol table techniques; syntactic and semantic phases of compilation; internal forms of the source program; scanning and recognition; top-down and bottom-up parsing; storage allocation; implementation of block-structured languages; introduction to grammars and languages; error handling subroutine and function compilation; parameter passing; optimization of object code; translator-writing systems. Programming exercises will involve writing parts of a compiler in a high-level language, and a complete elementary compiler using a translator-writing system.

Prerequisite: Computing Science 95.201★ or 95.204★.

Text: Gries, *Compiler Construction for Digital Computers*.

References: Rosen, *Programming Systems and Languages*; Hopgood, *Compiling Techniques*; McKee-man, Horning, Wortman, *A Compiler Generator*.

Evening division, First term: Lectures three hours a week.

W.R. Bezanson

Computing Science 95.303 ★

Real-Time and Hybrid Computing

This course is primarily concerned with the use of digital computers in peripheral control, analog signal processing, measurement, and hybrid computation. Small computer experience; PDP-8 machine language, peripheral control and interrupt handling software. Digital-to-analog and analog-to-digital conversion. Digital control of analog computers. (Also listed as Engineering 94.303 ★.) Enrolment in this course is limited by the resources of the small computer laboratory.

Prerequisite: Engineering 94.165, or equivalent.

Texts: Digital Equipment Corporation, *Introduction to Programming, Volumes 1 and 2*.

Day division, Second term: Lectures and tutorials two hours a week, laboratory two hours a week.

B.A. Bowen, D.C. Coll

Computing Science 95.304 ★

File Structures and Data Bases

Storage and retrieval hardware: properties, cost, performance implications. Information structures: lists, trees, networks; hierarchical and associative relationships. File organizations: lists, linked lists, multilists, direct and inverted lists. Directories and directory organization. Operations on directories, and files: sorting, merging, posting, searching, accessing, retrieving, inserting, deleting, updating. Complex retrieval operations, e.g. by multiple keys. Data base systems; data definition and manipulation; comparison of existing systems.

Prerequisite: Computing Science 95.201 ★ or 95.204 ★ or 95.384 ★ or 95.303 ★.

Text: Knuth, *The Art of Computer Programming, Volume III: Searching and Sorting; The Codasyl Report*.

Day division, Second term: Lectures three hours a week. R.J.A. Buhr

Computing Science 95.310 ★

Information Systems Engineering

The basic function of an information system is to enable its users to perform efficiently. This course provides an appreciation of the problems related to engineering user-oriented information systems. Systems concepts. Information systems: properties, components, relationship to organization. General data base management systems. Identification of user requirements. Human factors. Design methods. Documentation. Project organization. Case studies. (Also listed as Engineering 94.310 ★.)

Prerequisites: One full or two half First year level Computing Science courses or equivalent.

Reference: Langefors, *Theoretical Analysis of Information Systems Theory of Generalized Data Base Management Systems (Codasyl System Committee)*.

Evening division, First term: Lectures three hours, a week.

P. Nador

Computing Science 95.366 ★

Computer Applications

Analysis of engineering problems with the use of the digital computer including mathematical modelling, organization of the equations and methods of solution using analytical and numerical methods. Topics in numerical methods include: solution of single algebraic and transcendental equations and sets of linear algebraic equations, determination of eigenvalues and eigenvectors; curve fitting by difference and least squares methods; numerical integration, differentiation: solution of ordinary and partial differential equations. These methods are illustrated by application to typical engineering problems. An important part of the course is the use of the computer. This is realized by course problems and a project in which the computer is used to solve a typical engineering problem. (Also listed as Engineering 94.366 ★.)

Credit is not allowed for both this course and Computing Science 95.386 ★.

Prerequisites: Third year registration in Engineering or Physics, and an introductory programming course.

Text: Southworth and Deleeuw, *Digital Computation and Numerical Methods*.

References: James, Smith and Wolford, *Applied Numerical Methods*; Crandall, *Engineering Analysis*.

Day division One term: Lectures and tutorials three hours a week. Offered both terms.

J.K. Cavers, G.D. Cormack

Computing Science 95.384 ★

Information Structures

Discrete structures. Graphs, trees, strings, and their applications. Digraphs of programs. Computer representation of structures. Storage of arrays, sparse matrices, allocation of execution time. Pushdown stores, lists, and list structures. List processing. Sorting and searching techniques. This course may be taken by students in the Second year. (Also listed as Mathematics 69.384 ★.)

Prerequisites: An introductory Computing Science course and Mathematics 69.217 ★ or equivalent.

Day division, First term.

F. Fiala

Computing Science 95.385 ★

Discrete Structures and Applications

Algebraic structures; lattices, Boolean algebra elements of the theory of directed and undirected graphs; combinatorics; languages over an alphabet; switching circuits, optimization and complete design, algebraic codes, flow charts, connectivity, minimal paths. (Also listed as Mathematics 70.385 ★.)

Prerequisites: Mathematics 70.210 or 69.218 ★ and an introductory Computing Science course or permission of the Instructor.

Day division, Second term.

F. Fiala

Computing Science 95.386 ★

Numerical Analysis

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. (Also listed as Mathematics 69.386 ★.)

Credit cannot be obtained for both this course and Computing Science 95.366 ★.

Prerequisites: Computing Science 95.103 ★, Mathematics 69.102 and 69.112, or 69.207 ★ and 69.217 ★, or 69.201 or 69.202 or 69.203.

Day division, First term.

E. Hughes

Computing Science 95.401 ★ (95.301 ★)

Operating Systems

This course aims to give the student an understanding of the major problems which must be solved by batch, timesharing and multi-programming operating systems, an appreciation of the types of solutions which have been implemented or proposed and an understanding of the effects of these solutions on performance. Topics covered include procedure implementation, job and task control, state queue structures, control of traffic between states, interrupt processing, control of I/O, cooperating processes, interprocess communication, memory and name management, virtual memory, paging and segmentation, filing systems, memory and file protection, resource allocation and pragmatic aspects.

Prerequisite: Permission of the Instructor.

Text: Watson, *Timesharing System Design Concepts*.

Reference: Denning, *Third Generation Computing Systems*.

Evening division, First term: Lectures three hours a week.

D.J. Sutherland

Computing Science 95.457 ★

Introduction to Computer Architecture

Syntax and semantics of Digital Design Language (DDL) are presented. A typical minicomputer is designed and documented to illustrate the application of DDL. Extensions of fixed architecture machines are discussed. Bus oriented systems are introduced, beginning with autonomous memories and including peripherals. Bus protocol systems are documented. Simple interfaces are discussed, and their specification and design are illustrated. Readonly memories are introduced as systems controllers and the programming of ROM's is illustrated. Typical microcomputer structures using LSI components are documented. (Also listed as Engineering 94.457 ★.)

Prerequisite: Computing Science 95.466 ★.

Day division, Second term: Lectures three hours a week.

B.A. Bowen

Computing Science 95.461 ★

Programmable Logic Systems

Introduction to Microcomputer Architecture. Characteristics and applications, major features of current systems. Techniques of microprogramming, examples of input/output, use of subroutines, arithmetic subroutines, logical operations, delays, time outs, holds, etc., discussion of programming languages and assemblers. Design studies will be selected from calculators, interface controllers, intelligent terminals, graphics, compilers, etc., economics and technical decisions in selecting and implementing a microcomputer system. (Also listed as Engineering 94.461 ★.)

Prerequisite: Engineering 94.466 ★.

References: Assigned papers and notes.

Day division, Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

B.A. Bowen

Computing Science 95.466 ★

Switching Circuits

Introduction: Gates, coding, iterative circuits, state concepts. Combinational circuit design: Canonical forms, switching algebra, maps, multiple output networks, wired-OR networks. Memories: latch, flip flop, shift register, RAM and ROM. Sequential circuitry: synchronous counters and scalars. Special purpose structures: timing and mode circuitry, pipeline organization, serial organization, small computer characteristics including interfacing, input/output considerations. (Also offered as Engineering 94.466 ★.)

Prerequisite: Third year registration or permission of the Instructor.

Text: Peatman, *The Design of Digital Systems*.

Day division, One term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

Offered both terms.

M.A. Copeland, M.E. Ulug

Computing Science 95.480 ★

Introduction to Software Engineering

This course introduces students to the problems and methods of specifying, designing and producing structural, modular software. Review of data and control structures in the common programming languages; corresponding run-time structures; operating system functions. Specification of programs using flowcharts, decision tables, finite state machines, top down programming and "black box" approaches. Approaches to modularization. Intermodule communication by the shared data structure and port approaches. Table driven programs. Need for efficiency, maintainability and reliability. Stages in a software project. Students will be expected to supplement the lectures by readings in the reference material and by participating in classroom discussions on this material. Students will normally take Computing Science 95.481 ★ in conjunction with this course. (Also listed as Engineering 94.480 ★.)

Prerequisite: Permission of the Instructor.

References: Dahl, Dijkstra and Hoare, *Structured Programming*; Knuth, *The Art of Computer Programming, Volume I*; Yourdon, *Advanced Programming Techniques, Volumes I and II, Various papers*.

Day division, First term: Lectures three hours a week.

R.J.A. Buhr, B. Pagurek

Computing Science 95.481★

Software Engineering Project

Students will participate in a team project to develop a piece of software in an organized and structured fashion. Non-numeric applications will be emphasized. (Also listed as Engineering 94.481★.)

Prerequisite: Computing Science 95.480★ or concurrent registration in Computing Science 95.480★.

Day division, One term. Offered both terms.

D.C. Coll

Computing Science 95.485★

Theory of Automata

Algebraic structure of sequential machines, decomposition of machines; finite automata, formal languages; complexity. (Also listed as Mathematics 70.485★.)

Prerequisite: Computing Science 95.385★ desirable.

Permission of the Instructor.

Day division, First term.

J.C. Poland

Computing Science 95.486★

Numerical Analysis

Study of matrix inversion techniques, techniques for finding eigenvalues and eigenvectors, introduction to problems of numerical optimization along a line and in n-dimensional space, simulation and Monte Carlo techniques. (Also listed as Mathematics 70.486★.)

Prerequisite: Permission of the Instructor.

Day division, Second term.

G. Zelmer

Humanities

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First year standing or higher.

Day division: Lectures three hours a week.

B. Wand and others

Humanities 10.200

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from the points of view of history, philosophy, social science and literature.

Prerequisite: Second year standing or higher.

Day division: Lectures two hours a week.

Not offered 1975-76.

Science

Science 60.100

Man and His Environment (for Non-Science Students)

Introductory lectures treat the historical background of science, development of scientific methodology, and what science is and is not. The first half of the First term explores the origin, development, and evolution of the universe, stars, planetary systems, the elements, the earth, bio-chemicals, and life on earth. The goal is to show where man is in the universe, what he is, and how he came to be, as learned by science. The second half of the First term explores the subjects of evolution and ecology, or the generalizations of how living things live and respond in relationship to other living things, and the non-living environment, without emphasis on man. The Second term explores the activities of man and their ecological consequences, or their impact on the environment. Topics include man's evolution and his use and abuse of land, nature, fire, water, the oceans, air, and wildlife. Pollution topics include water, air, heat, radiation, insecticides, organic and inorganic chemicals and pest species. Lastly are considered human problems of the house, the city, transportation, solid wastes, human population growth characteristics, the growing demand for food, a search for causes (religion, economics, etc.), the limits to growth, the future, and what can be done.

Day division: Lectures three hours a week.

S. Peck

Science 60.110

Physics and Chemistry (for Engineering Students)

An introductory course for First year Engineering students offered jointly by the Departments of Chemistry and Physics. Atomic structure, periodic system; ions and valence, heat and thermodynamics; mechanics; kinetic theory; wave motion and optics. Diffraction and interference. X-ray spectroscopy and structure of solids. This course is not a prerequisite for further Chemistry courses. However, individual students wishing to take further Chemistry courses will be considered on their merits.

Prerequisites: Chemistry 65.010, Physics 75.010, Mathematics 69.101, or equivalents.

Day division: Lectures three hours a week, laboratory three hours a week.

R.D. Barton, J.A. Koningstein

Other Courses

Computing Science, see p. 382.

Technology, Society and Environment Studies, see p. 390.

St. Patrick's College Interdisciplinary courses, see p. 236.

Technology, Society, Environment Studies

Members of the Committee

Chairman

J. Lukaszewicz (*Engineering*)

Members

C. Aasen (*Architecture*)

R.L. Clarke (*Physics*)

M.B. Fenton (*Biology*)

P. Hamel (*Chaplaincy*)

P. Hughes (*Sociology and Anthropology*)

R. Morrison (*Physics*)

F.K. North (*Geology*)

S.B. Peck (*Science*)

A.I. Wallace (*Geography*)

Two Student Representatives

Associated Members

Several members of the Faculty serve on the TSE Studies Committee as Associated Members.

General Information

It is becoming increasingly apparent that:

1. the future of the Western societies depends on their ability to cope with the complex problems resulting from the interactions of Technology, Society and the Environment (TSE);
2. the effectiveness of the democratic political process is contingent upon the perception and comprehension of these phenomena by the electorate;
3. because of the complexity and the wide range of the problems involved, their understanding cannot be gained through specialized education in traditional disciplines, but requires a multidisciplinary approach.

The two multidisciplinary courses listed below, offered under the direction of the TSE Studies Committee, seek to fulfill this need. They are designed to provide students from all faculties with a solid basis for understanding the major problems of industrialized society, and with first-hand appreciation, through research project work, of the complexities involved. The TSE courses are open to all students beyond the First year; these courses are especially recommended for students at the Third and Fourth year levels. However, students enrolled in three-year programs who would like to take both courses are encouraged to take one in the Second year.

TSE 59.301 deals with the major aspects of the interaction of technology and society, whereas TSE 59.302 addresses the problems of resources and of the impact of technology on the natural environment. Together, the two courses provide a fairly complete coverage of the

TSE interactions, and students are encouraged to take the courses in consecutive years, in the order which best suits their timetables. Each course consists of about 60 lectures given by members of various faculties and guest speakers, and research project work carried out in small groups of students from different disciplines under the direction of faculty advisers. Project topics are assigned according to students' preferences.

Courses Offered

Technology, Society, Environment 59.301

Technology-Society Interaction

A course intended to introduce students from all faculties to the study of major aspects of the interaction of technology and society. Specific topics include: social, economic, and psychological impact of technology in historical perspective, with case studies of innovations; technology as a motive force in history and as an element in human culture; the modernization process; science and technology in the developing countries; technology transfer; characteristics of industrial civilization. Social management of technology: Canadian and international examples. Major technological systems: transport, communications, energy, urban systems. Assessment and control of technology. Forecasting. Limits to growth. Perspectives on the human future. A research project will comprise a significant portion of the course work.

Prerequisite: Registration in Second or higher year.

Texts: *Reading Materials*, TSE 59.301, volume 1 (First term) and volume 2 (Second term).

Lectures and workshops three hours a week.

J. Lukaszewicz (*Co-ordinator*), C. Aasen, R. Abbott, M. Boyd, G. Carmody, M.B. Fenton, C. Langford, R. Morrison, J.S. Riordon, A.I. Wallace, C.M. Woodside and others

Technology, Society, Environment 59.302

Interaction of Technological Society with the Natural Environment and its Resources

A course intended to introduce students from all faculties to major aspects of the interaction between society and its technology, on the one hand, and the natural environment and its resources, on the other. Principal subdivisions of material of the course are: man versus nature in historical perspective; ecosystems; biogeochemical and energy cycles; food and population; renewable and non-renewable resources; energy as the basis of civilization; pollution in all its aspects; social management of the environment and its resources; case studies of technological impact on the environment. A research project will comprise a significant portion of the course work.

Prerequisite: Registration in Second or higher year.

Texts: B. Rorke, *Much is taken, much remains*; The Institute of Ecology, University of Wisconsin, *Man in the living environment*; W. Murdoch, ed., *Environment Resources, Pollution and Society*.

Lectures and workshops three hours a week.

P. Hamel and S.B. Peck (Co-ordinators), R. Abbott, A. Abdelhamid, R.L. Clarke, H. Feit, M.B. Fenton, R. Morrison, F.K. North, J.T. Rogers, A.I. Wallace and others

Other Related Courses

Other courses related to the TSE area offered by various departments and schools within the University are listed for the convenience of students. Detailed course descriptions are given under the appropriate faculty or department. Please note all prerequisite conditions prescribed for these courses must be met.

Architecture

- 76.200 Colloquium II
- 76.300 Colloquium III
- 76.324 ★ Social Environment Systems
- 76.423 ★ The Human Development/Built Environment Interface I
- 76.424 ★ The Human Development/Built Environment Interface II
- 78.360 ★ Futures (Long Range) Planning

Biology

- 61.190 Biology and Man
- 61.391 ★ Biology in Society

Economics

- 43.101 Contemporary Economic Issues
- 43.363 ★ Introduction to Economic Development
- 43.365 ★ The Economics of Planning

Engineering

- 82.480 ★ Resources Planning

English

- 18.207 Literature and the Sciences

Geography

- 45.101 The Geographic Web
- 45.230 Cultural Geography
- 45.330 Developing Nations of Inter-Tropic Africa
- 45.333 ★ Regional Development and Planning in Canada
- 45.334 ★ Geography of a Selected Drainage Basin
- 45.351 Geography of the Northlands
- 45.445 ★ Land Resource Use

Geology

- 67.111 ★ Geology, the Environment and Man I
- 67.112 ★ Geology, the Environment and Man II
- 67.202 ★ Non-Renewable Primary Resources
- 67.312 ★ Applied Environmental Geology

Integrated Science Studies

- 60.300 Seminar on Selected Topics in Science

Interdisciplinary

- 10.100 Humanities
- 10.200 Humanities

Journalism

- 28.100 and 28.110 Introduction to Human Communication
- 28.200 Problems of the Mass Media
- 28.300 The Modern Environment
- 28.434 ★ Media and Society I

Law

- 51.380 Law of Environmental Quality

Philosophy

- 32.232 ★ Philosophy of Science
- 07.200 Science and Man

Political Science

- 47.403 ★ Politics and the Media

Religion

- 32.200 The Encounter of Science and Religion
- 09.200 Contemporary Ethical Problems

Science

- 60.100 Man and His Environment

Sociology and Anthropology

- 53.246 ★ Industrial Sociology
- 56.253 ★ Introduction to Human Ecology
- 53.254 ★ Urban Sociology
- 53.312 ★ Science and Society
- 54.333 ★ Economic Systems
- 53.335 Social Response to the Built Environment
- 56.360 Social Change and Modernization
- 08.250 Population Studies
- 08.260 ★ Community
- 08.341 ★ Organizational Behaviour
- 08.380 Social Policy

Courses for Non-Majors

The courses which appear in the following list are offered exclusively or primarily for students specializing in another discipline. This section is intended to assist students to find courses of interest which would otherwise be difficult to locate in the calendar. Descriptions for these courses are contained in the appropriate Departmental section.

Biology

61.190 Biology and Man

Chemistry

65.106 The Study of Matter and Energy

65.222 Introductory Organic Chemistry

Classics

13.100 Some Aspects of Greek and Roman Civilization

French

20.001 Elementary French

20.011 Intermediate French

20.106 ★ Reading French

20.107 ★ Practical Phonetics

20.108 French Language Course for Non-Majors

20.151 French-Canadian Literature

20.152 French Literature

20.181 Civilization I

Geology

67.101 ★ Geology for Engineers

67.111 ★, 67.112 ★ Geology, The Environment and Man

67.202 ★ Non-Renewable Primary Resources

German

22.220 Studies in German Culture and History

Mathematics

69.100 Elementary Calculus and Algebra

69.101 Introductory Mathematics

69.130 General Mathematics

69.140 Gambling

69.201 Intermediate Calculus

69.202 Intermediate Mathematics

69.250 Introduction to Statistical Analysis

69.305 ★ Functions of a Complex Variable

69.306 ★ Mathematical Methods I

69.409 ★ Mathematical Methods II

Physics

75.150 Elementary Astronomy for Science and Engineering Students

75.190 Introduction to Astronomy

75.195 Physics of Music

75.291 ★ Physics of the Environment

75.292 ★ Physics of the Environment

Russian

36.110 Scientific Russian

36.260 Russian Literature in Translation

36.360 Studies in Russian Life and Culture

36.390 Slavic Language Tutorial/Bulgarian, Czech, Hungarian, Old Slavic, Polish, Serbo-Croatian

Science

60.100 Man and His Environment

Sociology

53.400 Sociological Analysis



Awards and Financial Assistance

Awards for Academic Excellence

Medals

The Governor-General's Medal

Awarded annually to the student standing at the head of the graduating class. Donor: His Excellency the Governor-General of Canada. Established 1952.

The President's Medal

Awarded annually in the name of the President of the University to the student standing at the head of the graduating class in St. Patrick's College.

The Chancellor's Medal

Awarded annually in the name of the Chancellor of the University, to a graduating student of outstanding academic achievement.

University Medals

Awarded annually, when merited, to the graduating students standing highest in Arts, Science, Commerce, Journalism, Engineering, and Architecture. Established 1949.

Senate Medals

Awarded, when merited, to graduating students of outstanding academic achievement. Established 1952.

Medal in Engineering (Ontario Association of Professional Engineers)

Awarded annually, when merited, to the graduating student standing highest in Engineering. Established 1961.

Entrance Scholarships

Carleton University offers a number of scholarships, tenable at the University, to students entering a full-time undergraduate program who have completed the Ontario Secondary School Honour Graduation Diploma (or its equivalent) and have demonstrated a high potential for university studies. These scholarships include:

1. the Senior Scholarships, named in honour of former senior officers of the University;
2. general Entrance Scholarships;
3. privately funded scholarships.

They are awarded on the basis of the academic standing maintained by the candidate and such evidence of scholastic aptitude as may be available. *These are continuing scholarships for not more than four years provided the candidate maintains a high academic standing and is registered in a full program of undergraduate courses during the Winter session.*

Values:

Winter session: \$1,200, \$1,000 or \$700 for the First and succeeding years.

Spring term: \$400, \$300 or \$200.

Privately Funded Scholarships

Mercy Neal Southam Entrance Scholarships

Entrance scholarships will be awarded annually, if merited, to students entering the First year of Arts, Journalism, Commerce, Science, or Engineering at Carleton University. Established in 1949 under the terms of bequest of the late Wilson Mills Southam, the scholarships are in memory of his grandmother, Mercy Neal Southam.

Francis C.C. Lynch Entrance Scholarships

Entrance scholarships have been established for open competition among students entering the First year of Arts, Science, Commerce, Journalism, Engineering or Architecture. Preference will be given where possible to an applicant from each of the Ottawa secondary schools. Donor: The late Francis C.C. Lynch. Endowed 1967.

Friends of Carleton Scholarships

Scholarships have been provided for general competition among students entering Carleton University at the senior matriculation level. Donor: The Friends of Carleton University. Established 1967.

Donald William Buchanan Scholarship

Value \$250 approximately. Awarded annually for general competition among students entering Carleton University. Donor: The late Donald William Buchanan. Endowed 1967.

Duchess of Connaught Scholarship

The yield from the endowment of this historic scholarship, amounting to approximately \$350 annually, has been made available to Carleton University by the Laurentian Chapter, I.O.D.E. The scholarship is to be awarded to an able student entering Carleton University, and may be held until graduation, if merited; at which time a new award will be made. Donor: Laurentian Chapter, I.O.D.E. Established at Carleton University, 1960.

Naomi Cook Scholarship Fund

Value \$250 approximately. Awarded annually to students with high academic standing entering Carleton University. Donor: The late Naomi Cook. Endowed 1967.

Ottawa Citizen Scholarship

A scholarship valued at \$1,200 will be awarded annually, if merited, to a student entering Carleton University from a high school in any one of the following counties in the Ottawa district: nine in Ontario (Carleton, Dundas, Glengarry, Grenville, Lanark, Prescott, Renfrew, Russell

and Stormont) and four in Quebec (Gatineau, Hull, Papineau and Pontiac). A student admitted with senior matriculation standing will receive \$400 per year for a period of three years; always provided that the student is registered as a regular full-time student at Carleton University and maintains a satisfactory academic standing. A candidate for this scholarship must present evidence of high scholastic attainment, together with a record of outstanding participation in the extra-curricular activities of his school. Donor: The Ottawa Citizen. Established 1955.

Dobbie Regional Entrance Scholarships

Eight entrance scholarships will be available for 1975-76 for students entering Carleton University on the following distribution: (1) four scholarships available for Ontario (except the City of Ottawa) and the Western provinces and Territories; (2) four scholarships available for Quebec and the Maritime provinces. Donor: The late Jemema Grace Dobbie. Endowed 1967.

Dr. Frederick William Charles Mohr Scholarships

Scholarships have been made available for annual competition among students entering Carleton University or proceeding from one year of course to another at the University, and who come from communities within the following Ontario and Quebec counties. Ontario: Renfrew, Russell, Prescott, Glengarry, Stormont, Dundas, Grenville, Carleton, Lanark, Nipissing, Leeds. Quebec: Pontiac, Gatineau, Hull, Papineau, Argenteuil, Temiskaming. These awards are provided through the bequest of the late Dr. F.W.C. Mohr. Donor: The Frederick W.C. Mohr Estate. Endowed 1963.

W.H. Cramm Scholarship

Value \$100 approximately. Awarded annually to a male student of high proficiency entering Carleton University from Nepean High School, Ottawa. Donor: The late Jennie Shibley Cramm. Endowed 1967.

Jennie Shibley Cramm Scholarship

Value \$100 approximately. Awarded annually to a female student of high proficiency entering Carleton University from Nepean High School, Ottawa. Donor: The late Jennie Shibley Cramm. Endowed 1967.

Ottawa Citizen Scholarship in Journalism

Maximum value \$1,200. Awarded annually to a student entering First year of Journalism. The winner will receive \$300 a year until graduation provided the student is registered as a full-time student at Carleton University and maintains a satisfactory academic standing in the Journalism program. Donor: The Ottawa Citizen. Established 1969.

Association of Professional Engineers' Entrance Scholarship

Value \$500. Awarded annually to a student of high proficiency with senior matriculation standing who is entering

the Engineering course. Donor: The Ontario Professional Engineers' Foundation for Education. Established 1961.

James H. Rattray Memorial Scholarship

One scholarship valued at approximately \$500. Awarded annually to a student entering the First year Engineering at Carleton University. Donor: The late James H. Rattray, M.C. Endowed 1961.

Blok-Lok Limited Scholarship

Value \$250. Awarded annually to a worthy student entering or enrolled in the School of Architecture. Donor: Blok-Lok Limited, Weston, Ontario. Established 1968.

D. Roy Campbell Scholarship

Value \$300. Awarded annually, under the terms of the will of the late D. Roy Campbell, for competition among students entering Carleton University with high standing in the senior matriculation examinations or the equivalent. Donor: The late D. Roy Campbell. Established 1962.

Undergraduate In-Course Scholarships

Carleton University offers a number of scholarships, tenable at the University, to students continuing a full time undergraduate program who have completed the equivalent of at least one year at the University and have demonstrated a high potential for university studies. These scholarships include:

1. the Senior Scholarships, named in honour of former senior officers of the University;
2. general In-Course Scholarships;
3. privately funded scholarships.

They are awarded on the basis of the academic standing attained by the candidate in his university studies. Some of these scholarships are annual while others continue for not more than four years. To be eligible the candidate must have maintained a high academic standing and be registered in a full program of undergraduate courses during the Winter session.

Values:

Continuing scholarships: \$1,200, \$1,000 or \$700 for the First and succeeding years.
Annual scholarships: \$400.

Privately Funded Scholarships

Carleton Alumni Association Scholarships

Scholarships totalling \$1,000 have been provided for undergraduates passing from one year of course to another at Carleton University with high standing. Certain of the scholarships are reserved for students in

Honours. Donor: The Alumni Association of Carleton University.

Irene Gertrude Stitt Scholarship Fund

Scholarships totalling \$1,600. Awarded annually to students of high proficiency proceeding from one year of course to another at Carleton University. The fund has been made possible by a bequest of the late Edith May Stitt, in memory of her sister, Irene G. Stitt. Endowed 1966.

Ottawa Ladies' College Scholarships

Scholarships totalling \$4,000 have been provided by the University for annual competition among undergraduates for the various disciplines. Endowed 1967.

Francis C.C. Lynch In-Course Scholarships

Scholarships totalling \$6,000 have been provided for undergraduates passing from one year of course to another at Carleton University with high standing. Donor: The late Francis C.C. Lynch. Endowed 1967.

Jacob Freedman Scholarships

Scholarships totalling \$800 are awarded annually to outstanding students who are proceeding from one year of course to another at Carleton University. Donor: The late Jacob Freedman. Endowed 1967.

Gavin Scott Macfarlane Memorial Scholarship

Value \$200. Awarded annually to an outstanding student, preferably in Honours, who is proceeding from one year of course to another at Carleton University. First donated 1957, by Mrs. G.S. Macfarlane in memory of her husband, Lieutenant-Colonel Gavin Scott Macfarlane.

C.V. Hotson Memorial Scholarship

Value \$100. Awarded annually to an undergraduate student who maintains high academic standing and is active in student affairs. Donated by Carleton alumni and other friends in memory of Mr. Hotson, a 1950 Carleton Journalism graduate and former member of the Students' Council who returned to Carleton in 1953 to become administrative assistant to the president and executive secretary of the Alumni Association; a position he held until his death in October, 1960.

Ottawa Women's Canadian Club War Memorial Scholarship

Value approximately \$125. Awarded annually to an outstanding student who is proceeding from one year of course to another at Carleton University. Endowed 1946.

J. Lansing Rudd Scholarship

Value \$300 approximately. Awarded annually to a superior student progressing from one year of course to another at Carleton University. Donor: The late J. Lansing Rudd. Endowed 1967.

The Samuel L. Edelson Scholarship

Value \$250. Awarded annually to an outstanding student

who is proceeding from one year of course to another at Carleton University. Donor: Members of the family. Established 1974.

Carleton University Faculty and Staff Scholarship Fund

Provided annually by the faculty and staff to assist students of good academic standing who have completed one academic year in the university. Established 1958 as a bursary fund. Established 1967 as a scholarship fund.

University Women's Club of Ottawa Scholarships

Three scholarships valued at \$250 each. Awarded annually to women students at Carleton University enrolled in a degree program as part-time students and who have completed at least two full courses with second class standing or better. These awards are to be administered by the Scholarship Committee of the University Women's Club of Ottawa in co-operation with Carleton University. Donor: University Women's Club of Ottawa. First established in 1952 in honour of Dr. Alice E. Wilson.

James A. Gibson Scholarships

Scholarships totalling \$1,000 have been provided for superior students passing into the final year of the undergraduate course at Carleton University. The scholarships are named in honour of Dr. James A. Gibson, former Dean of Faculty of Arts and Deputy to the President of Carleton University. Donor: The Alumni Association of Carleton University.

Lord Dundonald Chapter (I.O.D.E.) Scholarship

Value \$150. Awarded annually to a student of superior standing and general proficiency, entering the final year of a degree course at Carleton University. Donor: Lord Dundonald Chapter, I.O.D.E. Established 1956.

J.P. Bickell Foundation Scholarships

The Trustees of the J.P. Bickell Foundation have established in the Department of Geology, Faculty of Science, scholarships for students entering the geological profession, of a possible value of \$1,500 each. The scholarships may be awarded on entrance into the Honours geological sequence at the First, Second or Third year levels at Carleton University. The scholarships are payable over two or three years depending on the entrance level. Three scholarships will be available for 1975-76. Full particulars may be obtained from the Awards Office.

The Jack Barwick and Douglas Duncan Memorial Scholarship for Art History

Value \$500 approximately. To be awarded annually to a student or students in the Department of Art History. The Chairman and faculty members of the Department of Art History are to decide each year on the most appropriate disbursement of the award. Donor: Mrs. J.P. Barwick. Established 1972.

The Jack Barwick and Douglas Duncan Memorial Scholarship for Music

Value \$500 approximately. To be awarded annually to a student or students in the Department of Music. The Chairman and faculty members of the Department of Music are to decide each year on the most appropriate disbursement of the award. Donor: Mrs. J.P. Barwick. Established 1972.

The Harry Kelman Memorial Scholarship

Value \$250. Awarded annually to an outstanding student in Second year or proceeding from Second to Third year and who is majoring in Art History at Carleton University. Donor: Friends of the late Mr. Harry Kelman. Established 1973.

Gordon J. Wood Scholarships in English

Value \$300 each. One to a full-time student in English proceeding from Second to Third year, who has taken at least three courses in English at Carleton; one to a full-time student in English proceeding from Third to Fourth year, who has taken at least four courses in English at Carleton University. The assessment to be made on the basis of overall grades for the year, including summer courses (if any) from the previous summer. English marks will be given particular consideration if necessary in the ranking of qualifying students. Donor: Gordon J. Wood, Professor of English, Carleton University. Established 1974.

Wainwright Scholarships

Value \$400-\$1,200 depending on the academic standing of the candidates. Awarded annually, if merited, to outstanding students proceeding from one year of course to another in a degree program in History. Courses in Canadian History must form a substantial component of this program. Donor: Miss Dora I.I.S. Wainwright. Established 1974.

International Nickel Company of Canada, Limited, Participating Scholarships

International Nickel provides annually at Canadian universities fifty awards to students entering the penultimate year of a baccalaureate program in Chemistry, Geology, and Civil, Electrical, Mechanical Engineering. (1) Applications are especially solicited from students in Geology and Physical Chemistry. No more than two applications will be considered from any one department. (2) Applicants must be Canadian citizens or possess landed immigrant status; be physically fit, and demonstrate an interest in practical affairs consistent with a vocation in industry; be currently attending a Canadian university in a full-time program qualifying for admittance to the penultimate year; and be nominated by the Chairman of the department in which he will study. (3) Each award provides for tuition and fees, and a grant of \$300 for miscellaneous expenses. The recipient will also have an opportunity to undertake an orientation course with the Company in operations allied to his field of study during the summer vacation period preceding

receipt of the award. Compensation for summer assignments will be made at current Company student rates. An aid to education supplement of \$500 is also provided for the department in which the student is enrolled. The scholarships may be renewed for the final year. (4) Brochures and application forms may be obtained from the Student Awards Office or from the Administrator of Educational Affairs, The International Nickel Company of Canada, Limited, P.O. Box 44, Toronto-Dominion Centre, Toronto 111, Ontario. (5) Applications must be received by the Company from the University not later than January 7. Donor: International Nickel Company of Canada, Limited. Established 1960, revised 1970.

Clendinnen Scholarship in Biology

Value \$100. Awarded annually to an outstanding student proceeding from the Third to the Fourth year of the Honours course in Biology at Carleton University. Established 1951, in memory of Mr. and Mrs. T.E., Clendinnen, by their daughter.

Clarence H. Hand Scholarship

Value \$200. Awarded annually to a student for excellence in studies in cryptogamic botany. Donor: Anonymous. Established: 1972, in honour of the late Clarence H. Hand, a skilled high school teacher and amateur bryologist.

Charles Anthony Blundell Betts Memorial Scholarship in Physics

Value approximately \$450. Awarded annually, if merited, to a student of high proficiency in Physics, entering or continuing in Physics Honours or in the Major course, in the Second or subsequent years of the degree course. Donors: Mr. and Mrs. Oliver Betts, Birmingham, England, in memory of their son, Charles Anthony Blundell Betts. Established 1964.

The Carling O'Keefe Scholarship

Value \$600. Awarded annually to an outstanding full-time student who is proceeding from one year of course to another at Carleton University. Donor: The O'Keefe Brewing Company Limited. Established 1972.

Mildred Susan Henry Scholarship

Value \$100. To be awarded annually to a student entering the Fourth year of the Honours program in the Faculty of Science. Endowed 1966 in memory of the late Mildred Susan Henry.

Dr. Harry Katznelson Memorial Scholarship

Value approximately \$100. Awarded annually to an outstanding student proceeding into an advanced year in the Honours Biology program. Donor: The Friends of the late Dr. Harry Katznelson, B.S.A., M.Sc., Ph.D., F.R.S.C., Director of the Microbiology Research Institute, Federal Department of Agriculture. Established 1965.

Janet M. Holmes Memorial Scholarship

Value \$300. Awarded annually, when merited, to a promising student proceeding from the Third to the Fourth year of the Honours Chemistry program at Carleton University. Candidates will be selected by the Department of Chemistry. Donor: Professor and Mrs. J.M. Holmes. Established July 1973.

L.N. Wadlin Scholarship in Mathematics

Value approximately \$225. Awarded annually to a student proceeding from one year to another at Carleton University who has shown excellence in the study of Mathematics. Donor: The late Lorenzo N. Wadlin. Endowed 1965.

Thorne, Riddell & Company Scholarships

Two scholarships valued at \$400 and \$300 each. The first scholarship of \$400 is awarded annually to the Third year Commerce student with the highest average marks. The second scholarship of \$300 is awarded to the Third year Commerce student with the second highest average marks. (Formerly awarded as a scholarship by Arthur A. Crawley & Company, and as a bursary by Thorne, Gunn, Helliwell & Christenson). Donor: Thorne, Riddell & Company. Established 1969.

Touche, Ross & Company Scholarship

Value \$250. Awarded to a student who is proceeding from one year of course to another in the degree program in Commerce, and who intends upon graduation to study for the qualification of chartered accountant. The award will be made to the student whose character, ability, academic records, and other qualities are, in the opinion of the Committee on Commerce Studies, those needed by a chartered accountant. Preference will be given to a student with these qualifications who will be entering his final year of course. Applications should be submitted to the Chairman of the Commerce Studies Committee before March 1. Donor: Touche, Ross & Company. Established 1962.

Xerox of Canada Limited Scholarship

Value \$1,000. Awarded to a student entering his final year of the degree course in Commerce. The sum of \$750 will be awarded to the recipient and \$250 for the unrestricted use of the School of Commerce. Should a post-graduate program be established in the School of Commerce at a later date this scholarship will be awarded as a fellowship in the course leading to the most advanced degree offered. Donor: Xerox of Canada Limited. Established 1970.

Victor S. Castledine Scholarship

Value \$500. To be awarded annually to a student in Economics or Commerce who, in the opinion of the Chairman of the Department of Economics in council, has done outstanding work in the area of money, credit and banking studies. Donor: Victor S. Castledine, Esq. Established 1971.

Association of Professional Engineers' Scholarships

Value \$250 each. Three scholarships are awarded annually to Engineering students of high proficiency proceeding from one year of course to another in Carleton University. Donor: The Ontario Professional Engineers' Foundation for Education. Established 1961.

Northern Electric Company Scholarship

Value \$500. Awarded annually to a student of high proficiency proceeding from one year of course to another at Carleton University. Donor: Northern Electric Company Limited. Established 1973.

Regent Vending Machines Limited Scholarships

Two scholarships valued at \$100 each. One scholarship is awarded annually to an outstanding student in Engineering proceeding from the First to Second year in the Engineering curriculum; and the second scholarship to such a student proceeding from the Second to the Third year of the curriculum. Donor: Regent Vending Machines, Limited. Established 1954.

Regent Vending Machines Limited Centennial Scholarship

One scholarship of \$150 awarded annually to an outstanding student in Engineering proceeding from Third to Fourth year. Donor: Regent Vending Machines, Limited. Established 1967.

Regent Vending Machines Limited Anniversary Scholarship

Value \$100. Awarded annually to an outstanding student in Engineering proceeding from one year of course to another at Carleton University. Donor: Regent Vending Machines Limited to commemorate the 40th anniversary of the Company. Established 1972.

Hume Wrong Scholarship

Value approximately \$225, being the yield of a fund of \$5,000, established by Mrs. Hume Wrong in memory of her late husband. Awarded annually to the leading student in Third year History or Political Science, proceeding to his or her final Honours year. Donor: The late Mrs. Hume Wrong. Endowed 1962.

National Press Club of Canada Scholarship in Journalism

A sum equal to tuition fees to be awarded annually to a student entering the final year of Journalism or News Photography course in a Canadian college or university. The name of one Carleton University student will be submitted annually to a selection panel of National Press Club members. Donor: The National Press Club of Canada. Established 1965.

Thomson Award for Reporting

Value \$300. Awarded annually to a student proceeding from Third to Fourth year Honours Journalism judged to be outstanding in reporting. Donor: Thomson Newspapers. Established 1970.

Blair Fraser Memorial Award for Journalism Graduates
Value \$125 approximately. Offered annually to a Journalism student in his graduating year who, in the opinion of a board of selection, shows a marked aptitude for and interest in political reporting at the national and international level. Endowed 1969, in memory of Blair Fraser, Ottawa editor of Maclean's magazine, by a group of his friends.

Maclean-Hunter Award in Journalism

Value \$1,000. Awarded annually to a student entering the one year program in Journalism for university graduates mainly on the basis of previous academic performance. Donor: Maclean-Hunter Publishing Company Limited. Established 1967.

Page and Steele School of Architecture Scholarship

Value \$300. Awarded annually to an outstanding student enrolled in the School of Architecture at Carleton University. Donor: Page and Steele Architects. Established 1967.

James E. Whenham Scholarship

Value \$200. Awarded annually to a student of superior standing enrolled in the School of Architecture, Carleton University. Donor: James E. Whenham. Established 1968.

Lithwick, Lambert, Sim, Johnston, Moy Scholarship

Value \$300. Awarded annually to an outstanding student who has completed the Third year of course in the School of Architecture at Carleton University. Donors: Lithwick, Lambert, Sim, Johnston, Moy, Architects. Established 1968.

Ontario Association of Architects Awards

Value \$300. Awarded annually to a deserving student enrolled in the Second year in the School of Architecture an award of \$150, and to a deserving student enrolled in the Third year of the School of Architecture an award of \$150. Donor: Ontario Association of Architects. Established 1972.

Terrazzo, Tile & Marble Association of Canada Award

Value \$100. To be awarded to a student in Architecture on the basis of a project involving terrazzo, tile and/or marble. Donor: Terrazzo, Tile & Marble Association of Canada. Established 1974.

Audrey Stankiewicz Design Award

Value \$500. This award has been made available to a Third or Fourth year student in the School of Architecture once every two years commencing in February, 1971. The award is made to honour the memory of the late Audrey Stankiewicz who had a continuing critical interest in product, visual and industrial design and architecture. Donor: Mr. Z. Matthew Stankiewicz. Established 1970.

Graduate Awards

A list of the post-graduate scholarships and fellowships can be found in the Graduate Studies and Research Calendar.

Awards

The Sylvio Tiezzi Memorial Award

An award, consisting of the proceeds of a fund in trust in memory of the late Sylvio Tiezzi, an undergraduate at St. Patrick's College of the class of 1952. It is awarded to the Second year student at St. Patrick's College who has the best academic record for the year.

Faculty Club Award

Value \$100. Awarded by the Faculty Club of Carleton University to a student chosen by the President. Established 1946.

Henry Birks and Sons (Ontario) Limited Award

Value \$25. Awarded annually to a Carleton University student with a superior academic record who has contributed substantially to extracurricular activities. Donor: Henry Birks and Sons (Ontario) Limited. Established 1951.

Henry Marshall Tory Award

Presented annually to an outstanding graduating student who has shown a high degree of academic application, has indicated an interest in the University by broad participation in extracurricular activities of a constructive nature, has indicated qualities of leadership, and has attended Carleton University for at least three winter sessions. Each candidate is nominated by three members of the Students' Association and selection is made by a committee composed of the President of the University, the Dean of Student services, a member of the Faculty Board chosen by Senate and three students chosen by the Students' Council. The winner's name is inscribed on the master trophy and he receives a miniature replica. The award was established in 1950 by the Students' Council of Carleton University.

Clarkson, Gordon & Co. Award

Value \$100. Awarded annually to the student with the highest standing in the First year of the Commerce course. Donor: Clarkson, Gordon & Co. Established 1962.

D.F. McKechnie Award in Accounting

The yield of a \$200 fund is used each year to purchase a book prize to be awarded, when merited, to a student in Commerce for proficiency in the study of accounting. Donor: D.F. McKechnie, C.A. Endowed 1951.

Lawrence Segal Memorial Fund

Value \$15. Established as a book prize for a student enrolled in the School of Commerce. Donors: The friends

of the late Lawrence J. Segal, Bachelor of Commerce Graduate, 1961, from Carleton University. Endowed 1970.

National Council of Jewish Women of Canada Award
Value \$100. Awarded on the recommendation of the Department of Religion to a student achieving high standing in the area of Judaic studies. Donor: National Council of Jewish Women of Canada, Ottawa Section. Established 1973.

Ann Smith Freedman Memorial Award
Value \$50. Awarded to the student in Psychology who has gained the highest standing in the experimental paper in Psychology 49.200 during the academic year. Donors: Mr. and Mrs. Jarvis Freedman. Established 1958.

International House Award
Value \$200. To be awarded to a student attending Carleton University on a student visa in his graduating year, who, in addition to maintaining the academic levels of his degree program, has been an active participant in extracurricular activities in the University. Donor: International House. Endowed 1972.

Charles Pinhey Award
Awarded to a student entering the First year of Commerce at Carleton University from a secondary school in the Ottawa-Carleton Regional Municipality. The sum of \$300 will be awarded in the student's first year, and \$200 for each succeeding year provided the student is registered as a full-time student at Carleton University and maintains scholarship levels in the Commerce program. This award will be based on high academic performance and on financial need. Donor: The Ottawa Board of Trade. Established 1974.

Lilian I. Found Award for Poetry
Value \$25. Offered annually for the best lyric of fifty lines or less submitted by an undergraduate of Carleton University by March 15. Details may be obtained from the Department of English. Donor: The late Mrs. Lilian I. Found. Endowed 1950.

Wilgar Memorial Award in English
The yield of a \$200 fund is used each year for a book prize to be awarded to a Carleton University undergraduate who has shown excellence in essay-writing. Established 1951, in memory of the late W.P. Wilgar, assistant professor of English at Carleton University, 1948-50. Endowed 1952.

Roodman Award for Short Fiction
Value \$50. Awarded annually for the best piece of short fiction submitted by an undergraduate in the Department of English. Donors: Mr. and Mrs. Herman S. Roodman. Established 1965.

Mrs. George S. Abbott Memorial Prize in Law
Value \$30. To be awarded annually for proficiency in law courses taken at Carleton University to a student planning to enter law school. Donor: Anonymous. Established 1968 in memory of Mrs. George S. Abbott.

Herbert G. Heron Q.C. Award in Law
Value: \$200 approximately. To be awarded annually to a student in the Department of Law on the recommendation of the Chairman of the Department of Law in conjunction with his Committee. Established 1975 in memory of Herbert G. Heron, Q.C.

Carswell Company Book Award in Public Law
Value \$50. Awarded annually to the student with the highest standing in a Public Law course. Donor: The Carswell Company Limited. Established 1965.

J. Carlisle Hanson Award
Value \$100. Awarded annually to an outstanding student proceeding into a combined Honours program in Law and History or Economics at Carleton University. Established 1973.

De Waan Foundation Award on Arab Problems
Each year for a period of five years from the first year of award, the De Waan Foundation offers a prize for work of appropriate scholarly level by a senior student on the problems of Arab countries. Annual value, \$100. Students wishing to prepare for this award should first consult the Director of the School of Public Administration. Donor: De Waan Foundation, 1960.

Journalism Writing Style Book Prize
Value \$25. Awarded annually as a book prize to a Journalism 28.220 student, the writing style of whose class assignments shows exceptional merit. Donor: Anonymous. Established 1970.

CKOY Scholarship in Journalism
Value \$400. Awarded to a student who is proceeding from one year of course to another in the School of Journalism at Carleton University. Donor: CKOY Limited, Ottawa. Established 1973.

Kingston Whig-Standard Award in Reporting
Value \$250. Awarded annually to the Journalism student in any reporting course for the story judged the best single assignment turned in. Donor: Kingston Whig-Standard. Established 1970.

Kenneth R. Wilson Memorial Award for Journalism Graduates
Value about \$300. Offered annually to a student graduating in Journalism who, in the opinion of a board of selection, shows exceptional promise as a future reporter and interpreter of Canadian affairs. Endowed 1953, in memory of Kenneth R. Wilson, Ottawa Editor of *The Financial Post*, by a group of his personal friends.

International Nickel Co. of Canada Ltd. Award in Journalism

Value \$250. To be awarded to a graduating student in Journalism with the best record in the Journalism subjects, this award is provided by the International Nickel Company of Canada, Limited. Established 1960.

Wilfrid Eggleston Award in Journalism

Value \$250. Awarded to the undergraduate with the best record in the Second year Journalism degree program. This award is named in honour of Professor Emeritus Dr. Wilfrid Eggleston, former director of the School of Journalism. Donor: Anonymous. Established 1967.

The Rachael Elizabeth Edwards Memorial Award

Value \$200. Presented annually on the recommendation of the School of Journalism to an outstanding student who is graduating in the School of Journalism one-year degree program. Preference will be given to a female student who has indicated an interest in pursuing a career in the daily newspaper field. Endowed 1974. In memory of Rachael Elizabeth Edwards, a former student in the School of Journalism.

B.M.I. Canada Limited Award

Value \$50. Awarded annually on the recommendation of the Department of Music, to a student who has demonstrated aptitude in music composition. Donor: BMI Canada Limited. Established 1974.

Chemical Institute of Canada Award

Value \$25. Awarded as a book prize to the best student proceeding to the final year of the course leading to the degree of Bachelor of Science with Honours in Chemistry. Donor: The Chemical Institute of Canada. Established 1950.

Society of Chemical Industry Award

A gold key with the crest of the Society of Chemical Industry in front and the name of the winner, course, year and university on back is granted to the student who has the highest standing in the final year of the Honours course in Chemistry. Winner will also receive a year's subscription to the Journal, *Chemistry and Industry*. Donor: Canadian Section, Society of Chemical Industry. Established 1961.

Dr. M. Ralph Berke Award in Chemistry

The yield of a \$500 fund is awarded each year, if merited, on the recommendation of the Department of Chemistry for a prize to be awarded to an outstanding student majoring in Chemistry proceeding from the Second to the Third year of the degree course. Donor: Dr. M. Ralph Berke. Established 1956.

Catherine Daumery Memorial Award for Botanical Collection

Value \$50, together with a book prize. Awarded annually, if merited, on the recommendation of the Department of Biology, to a student who has submitted, by November

1, an outstanding collection of mounted and identified flowering plants. Donor: Anonymous. Established 1953.

Elizabeth White Memorial Award for Zoological Collection

Value \$50, together with a book prize. Awarded annually, if merited, on the recommendation of the Department of Biology, to a student who has submitted, by November 1, an outstanding collection of insects or arachnids, properly preserved and identified. Donor: Anonymous. Established 1953.

V.A. Ewing Memorial Award

Value \$100. Awarded annually, if merited, on the recommendation of the Department of Biology to a student entering his graduating year in Honours Biology who has shown outstanding application and promise in his laboratory work in experimental and descriptive Biology. Donor: Anonymous.

Award of the Canadian Institute of Mining and Metallurgy (Ottawa Branch)

Value \$500. The cash prize mentioned is available annually for an essay submitted by full-time undergraduate students at Carleton University and University of Ottawa only. This cash prize is for the best essay on a subject appropriate to any one of the Institute technical divisions, namely the Coal Division, the Geology Division, the Industrial Minerals Division, the Mechanical/Electrical Division, the Metallurgical Society, the Metal Mining Division and the Petroleum Society of CIM. For the purpose of this competition, an undergraduate student may be one who is registered in a Second, Third or Fourth year of an undergraduate program at the time he submits his essay. Essays will have to be submitted to the Chairman of the Geology Department of Carleton or University of Ottawa on or before December 31 of each year. Essays need not be papers prepared exclusively for this competition. They may incorporate in part or entirely other papers presented by students as academic exercises. The use of field data or field observations collected by the student himself during Summer employment is recommended. Established 1956 and 1974.

American Society for Metals Award in Engineering

Value \$25. Awarded annually to a student with high standing in the First year of the Engineering course. Donor: Ottawa Valley Chapter, American Society for Metals. Established 1951.

Wild of Canada Limited Prize in Engineering

A prize of a set of stainless steel drawing instruments is awarded annually to a student in First year Engineering at Carleton University judged most worthy of the award by the Faculty of Engineering. Donor: Wild of Canada Limited. Established 1960.

Department of Mathematics Entrance Award

Value \$150 minimum. One or more annual awards for a student or students entering the First year of an Honours or Major Program in Mathematics at Carleton University. The selection of the recipient or recipients will be based on an annual Mathematics competition for high school students with the decision being recommended by the Chairman of the Department of Mathematics in consultation with the Awards Officer and the Department's High School Liaison Committee. Donor: Members of the faculty in the Department of Mathematics. Established 1973.

Prize of the Ambassador of Switzerland to Canada

For excellence in the study of French, German, and Italian, book prizes are offered annually by the Ambassador of Switzerland to Canada. Established 1953.

Prize of the Embassy of the Federal Republic of Germany

For excellence in the study of German, book prizes are offered annually by the Embassy of the Federal Republic of Germany in Canada. Established 1955.

Prize of the Embassy of Austria

For excellence in the study of German, a book prize is offered annually by the Austrian Embassy in Canada. Established 1960.

Prize of the Embassy of Italy

For excellence in the study of Italian, a book prize is offered annually by the Embassy of Italy in Canada. Established 1971.

Prize of the Embassy of Spain

For excellence in the study of Spanish, a book prize is offered annually by the Spanish Embassy in Canada. Established 1960.

Prize of the Embassy of the Union of Soviet Socialist Republics

For excellence in the study of Russian, prizes are offered annually by the Embassy of the Union of Soviet Socialist Republics. Established 1963.

Prize of the Ambassador of the United States of America

A book prize is offered annually by the American Ambassador to Canada to a graduating student who has distinguished himself in the fields of United States history, economics, or political science. Established 1968.

Prize of the Government of Quebec for excellence in the study of French

A book prize is offered annually by the Minister of Cultural Affairs of the Province of Quebec. Established 1968.

Bursaries

University General Bursary Fund

The fund is to provide bursaries in aid of students with satisfactory academic standing who, in the First or subsequent course-years, are in need of financial assistance. Established by the University in 1954.

The Mary C. Grant Bursary (Laurentian Chapter, I.O.D.E.)

Value \$500. Awarded annually to a particularly able student entering Carleton University or proceeding from one year of course to another, and requiring financial assistance to complete his or her studies. The bursary has been established in honour of Mary C. Grant. Donor: The Laurentian Chapter, I.O.D.E. Established 1962.

Knights of Pythias, Aurora Lodge No. 53 Bursary

Value \$100. Awarded to a good student, progressing from one year of course to another, who needs financial assistance to continue his or her studies. Donor: Knights of Pythias, Aurora Lodge No. 53. Established 1960.

Maurice Frederick Carty Bursary

Value \$300. Awarded annually to a student in course who would not otherwise be able to proceed without delay to a higher year within the University. Donor: Mrs. E.G. Carty, in memory of her son, Maurice Frederick Carty. Established 1957.

Phillips Bursary

Value approximately \$200, the annual yield of a fund of \$5,000 made available to Carleton University by Miss L.A. Phillips. The bursary is to be awarded each year to a student with good academic standing who is in need of financial assistance. Endowed 1962.

IBM-Canada Bursary Program

Value \$1,000 annually. To provide bursaries to undergraduates in any year of any faculty who are of good academic standing and in need of financial assistance. Donor: International Business Machines Company Limited. Established 1963.

Honourable Cairine Wilson Bursary

Value \$200. Awarded annually to a good student entering Carleton University or proceeding from one year of course to another and requiring financial assistance to complete his or her studies. The bursary has been made possible by a bequest of the Honourable Cairine Wilson, first woman member of the Canadian Senate. Endowed 1962.

Patricia Larmonth Memorial Bursary

Value \$100. Awarded annually to a deserving student enrolled at Carleton University and who is in need of financial assistance. Donor: Ottawa Women's Canadian Club. Established 1971.

A. Andras Memorial Bursary

Value \$250. Awarded annually to an undergraduate student attending Carleton University, who is in need of financial assistance and whose parent is a member of a trade union which is affiliated to the Canadian Labor Congress. Established 1972, in memory of the late Mr. A. Andras who was a member of Carleton's Board of Governors.

Nathan Braham Bursary

Value \$200-\$250. Awarded annually to an entering or returning student, with superior academic standing who is in need of financial assistance. The bursary has been made possible by a bequest of Mr. Nathan Braham. Endowed 1964.

Ormond M. Stitt Bursary Fund

To provide bursaries for deserving students in need of financial assistance. The fund has been made possible by a bequest of the late Miss Edith May Stitt, in memory of her brother, Ormond M. Stitt. Endowed 1966.

Friends of Carleton Bursary Fund

A sum to provide bursaries for deserving students in need of financial assistance. This fund has been made possible by contributions from the Friends of Carleton University. Established 1967.

Abraham and Mary Shaffer Bursary

Value \$500. Awarded annually to a good student entering Carleton University or proceeding from one year of course to another, and requiring financial assistance to complete his or her studies. Donor: The late Abraham Shaffer. Endowed 1967.

Beta Sigma Phi Sorority Bursary

Value \$250. To be awarded to a deserving female student majoring in English. Donor: The City Council of Beta Sigma Phi Sorority. Established 1964.

John S. Nelson Bursaries

Two bursaries valued at \$300 each. Awarded annually to full-time students enrolled at Carleton University and who are in need of financial assistance. Donor: John S. Nelson, B.A. Carleton, 1952. Established 1969.

Isabella Ellen Taylor Memorial Bursary Fund

Value \$1,000 annually. To provide bursaries to undergraduates in any year of course who are in need of financial assistance and have good academic standing. Donor: The late Daisy Elizabeth Taylor. Endowed 1969.

Donald William Buchanan Bursary

Value \$250. Awarded annually to a student entering or progressing from one academic year to another, and who is in need of, and deserving of, assistance to continue studies as a full-time student. Donor: The late Donald William Buchanan. Endowed 1967.

Gretta Boyd Memorial Bursary

Value \$100. First awarded in 1969-70 to an undergraduate student in any year or faculty with good academic standing and in need of financial assistance. Donor: Kiwanis Club of City View. Established 1969 in memory of the late Gretta Boyd.

ATA Trucking Industry Educational Foundation Bursary Fund

To provide bursaries for First or Second year students who, due to extenuating circumstances, are deserving of financial assistance, and without such assistance would be unable to continue their studies. Donor: Automotive Transport Association of Ontario (Inc.) Established 1959.

Steel Company of Canada Limited Bursary

Value \$500 annually. Awarded to a good entering student who has completed his or her final year's work for university entrance in one school year. This bursary may be a continuing one for up to four years, provided that satisfactory academic standing is maintained. Donor: The Steel Company of Canada Limited. Established 1965.

C.A. Fitzsimmons and Company Limited Bursary

Value \$100. Awarded annually to a competent student entering Carleton University who, without financial assistance, could not continue his or her formal education. Donor: C.A. Fitzsimmons and Company Limited, Ottawa. Established 1960.

National Printers Limited Bursary

Value \$250. Awarded annually to an undergraduate student who has completed at least one academic year at Carleton University, and who is in need of financial assistance. Donor: National Printers Limited, Ottawa. Established 1965.

J. Lansing Rudd Bursary

Value \$225. Awarded annually to a good student progressing from one year of course to another who needs financial assistance to continue his or her studies. Donor: The late J. Lansing Rudd. Endowed 1967.

Atkinson Charitable Foundation Bursary Fund

Value to be announced. Awarded to assist students of Carleton University. Terms of award are as follows (1) In addition to scholastic merit and financial need, goal and promise will be considered in selecting recipients. (2) Candidates must be residents of Ontario. (3) An applicant must have completed at least one academic year and be enrolled as a full-time undergraduate in any course at Carleton University. (4) For one of the awards, preference will be given to candidates intending later to pursue studies in Theology. Donor: The Atkinson Charitable Foundation. Offered for the first time in 1951, as an experiment in the provision of financial aid to students.

R.A. Beamish Bursary

Value approximately \$250. Awarded annually to a student entering or progressing from one academic year to another who, without financial assistance, could not continue his or her formal education. To be eligible, an applicant must be a resident of one of the eleven eastern counties of Ontario (Renfrew, Frontenac, Lanark, Leeds, Carleton, Grenville, Russell, Dundas, Prescott, Glengarry, Stormont). Donor: The R.A. Beamish Foundation. Endowed 1951.

Wild of Canada Limited Bursary

Value \$250. Awarded annually to a student majoring in Biology, with good academic standing and who is in need of financial assistance. Donor: Wild of Canada Limited. Established 1961.

SDL Bursaries

Value \$1,000 annually. To provide four bursaries valued at \$250 each awarded to students with good academic standing and who are in need of financial assistance. Donor: Systems Dimensions Limited. Established 1975.

J.P. Bickell Foundation Bursary Fund

Value to be announced. The Trustees of the J.P. Bickell Foundation have established bursaries in the Faculty of Science. An applicant must be taking a normal sequence of courses leading to a degree in Geology and must have competent academic standing. Carleton students may obtain full details of the bursary from the Awards Office. Donor: J.P. Bickell Foundation, Toronto. Established 1956.

Hydro-Electric Power Commission of Ontario Bursary

Value \$500. Awarded annually to a student in need of financial assistance and who is entering the Second year of the Honours course in Physics or Mathematics, or the Second year of Engineering or Commerce. Donor: The Hydro-Electric Power Commission of Ontario. Established 1964.

James H. Rattray Bursary Fund

Value \$500 approximately, to provide bursaries for students in Science and Engineering, with certain areas of preference. Donor: The late James H. Rattray, M.C. Endowed 1961.

Edward Godfrey Carty Bursary

Value \$300. Awarded annually to a student in course, specifically in Engineering, who would not otherwise be able to proceed without delay to a higher year within the University. Donor: Mrs. E.G. Carty, in memory of her husband, Edward Godfrey Carty. Established 1964.

Engineers' Wives Association Bursary

Value \$600. Awarded annually to deserving students enrolled in the Faculty of Engineering. Donor: Engineers' Wives Association of Ottawa. Established 1959.

Litton Systems (Canada) Limited Bursaries

Two bursaries valued at \$150 each. Awarded annually to students with good academic standing, enrolled in the Faculty of Engineering, and who are in need of financial assistance. Preference will be given to those students who plan to major in Electrical or Mechanical Engineering. Donor: Litton Systems (Canada) Limited. Established 1967.

Ottawa Superfluity Shop Bursaries

An annual sum of approximately \$180 is available to provide bursaries for veterans of World War I or World War II, or for the descendants of such veterans, who are students in good standing at Carleton University and in need of financial assistance. Endowed 1947.

Ottawa Citizens' War Services Committee Bursary

An annual sum of approximately \$100 is available to assist veterans, their dependents or descendants, who are students in good standing at Carleton University and are in need of financial assistance. Endowed 1948.

Royal Canadian Legion Ottawa-Eastview Poppy Fund Awards

Awards, consistent with financial need but not normally over \$400, are offered to sons and daughters of veterans resident for at least one year in the Ottawa area. Application forms may be obtained from the Awards Office, Carleton University, or from Ottawa-Eastview Poppy fund H.Q. 542A Wellington St., Ottawa, K1R 6K5, (telephone 233-4810). Applicants will be called for interview the first week of September to review the financial circumstances of the student and family in relation to the academic program for which the student has been accepted.

Corporation House Limited Bursary

Value \$250. To be awarded annually to a good student in need of financial assistance, who is, in addition, a son or daughter of a parent employed in the public service of Canada, or in a federal corporation or agency, or serving in the Armed Forces of Canada. Donor: Corporation House Limited. Established 1962.

Birks Family Foundation Bursaries

The Birks Family Foundation has established a plan of annual contributions to the Student Aid Fund of recognized Canadian universities and colleges for the creation of the Birks Family Foundation Bursaries. The bursaries are awarded by the Foundation on the recommendation of the University Scholarship Committee and are not restricted to faculty or year and may be renewed. The number and amount of such awards may vary annually, depending upon the funds available for the purpose from the Foundation.

Father John Bransby Zachary Memorial Fund

To provide bursaries for students enrolled in St. Patrick's College who are in need of financial assistance. Endowed 1974 by friends and students of St. Patrick's College; this award is named in honour of the late John

Bransby Zachary, Registrar of St. Patrick's College 1961 until his death April 28, 1973.

Nurse "Bill" Bayley Memorial Fund

The fund is to provide for assistance in emergencies for students requiring dental and medical care. Endowed 1974 by friends and students; this award is named in honour of the late Kathleen Bayley, a member of the Counselling and Health Services, 1965 to the time of her death June 7, 1973.

Research Grant Funds

The A. Andras Memorial Grant

An annual grant of approximately \$350 to support the cost of a research project or paper undertaken by an undergraduate or graduate student attending Carleton University in one of the following areas: (1) trade union history or current activities of trade unions in Canada; (2) the history or activities of the Democratic Socialist movement in Canada; (3) a study related to social or cultural activities of Jewish immigrants in Canada since the beginning of the twentieth century. Established 1972 in memory of the late Mr. A. Andras, a member of Carleton's Board of Governors.

Loan Funds

John Parker Loan Fund

To provide loans not exceeding \$600 each to students who have completed at least one successful year at Carleton University and who are not eligible to receive assistance from other sources of financial aid. Inquiries for application forms are available to students following interviews with the Awards Officer.

Further information regarding existing sources of scholarships, prizes, bursaries and loans may be had from the Awards Office, telephone 231-3735.

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Assistant Professor of Religion
- V. Seymour Wilson, B.Sc. (British Columbia) D.P.A., M.A.
(Carleton) Ph.D. (Queen's)
Associate Professor of Political Science
- Conrad J. Winn, B.A. (McGill) Ph.D. (Pennsylvania)
Assistant Professor of Political Science
- Sydney F. Wise, B.A., B.L.S. (Toronto) M.A. (Queen's)
Professor of History
- Julian Wolfe, B.A. (Carleton)
Assistant Professor of Philosophy
- Joseph L. Wolfson, B.Sc., M.Sc. (Manitoba) Ph.D.
(McGill)
Professor of Physics

Jo-Yung Wong, B.Sc. (Tsing Hua) Ph.D. (Newcastle-upon-Tyne)
Associate Professor of Engineering

Stanley Wong, B.A., M.A. (Simon Fraser)
Lecturer in Economics

Gordon James Wood, M.A. (Toronto)
Professor of English

C.M. Woodside, B.A.Sc. (Toronto) Ph.D. (Cambridge)
Associate Professor of Engineering

James S. Wright, B.S. (Stanford) Ph.D. (Berkeley)
Assistant Professor of Chemistry

Whitman Wright, B.A.Sc. (Toronto) M.Sc., Ph.D. (Illinois)
Professor of Engineering

D.J. Wurtele, B.A. (London) M.A., Ph.D. (McGill)
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Janice M. Yalden, B.A. (Toronto) M.A. (Michigan)
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H. Yamazaki, M.S. (Hokkaido) Ph.D. (Wisconsin)
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Raymond W. Yole, B.Sc. (New Brunswick) M.A. (Johns Hopkins) Ph.D. (British Columbia)
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Associate Professor of English

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Associate Professor of Psychology

Eugenia N. Zimmermann, B.A. (Bernard) M.A., Ph.D. (Wisconsin)
Associate Professor of French

Professors, Emeriti

F.E. Banim, O.M.I., B.A. (Dublin) M.A. (Cambridge) S.T.L. (Rome)
Biology

D.J. Cahill, O.M.I., B.A. (Ottawa)
Physics

L.A. Cormican, O.M.I., B.A. (Dublin) M.A. (Cambridge) S.T.L. (Rome)
English

Wilfrid Eggleston, M.B.E., B.A. (Queen's) LL.D. (Carleton) D.Lit. (Western Ontario) F.A.G.S.
Journalism

Robert Alexander MacKay, B.A. (Toronto) Ph.D. (Princeton) LL.D. (Dalhousie, Carleton) F.R.S.C.
Political Science

Stanley G. Tackaberry, C.B.E., B.A.Sc. (Toronto)
Engineering

Sessional Lecturers, Instructors, Demonstrators, and Others

(Part-time personnel are indicated by asterisk *.)

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J.R. Amyot, B.Sc.A. (Ottawa) M.Sc. (Manitoba), P.Eng.
*Sessional Lecturer in Engineering**

A. Ansell, B.Sc. (Toronto) M.Sc. (Guelph)
*Sessional Lecturer in Geography**

P.L. Appleton, B.A. (Carleton) M.Sc. (Alberta)
*Sessional Lecturer in Economics**

P. Arenas, B.A. (Carleton)
*Sessional Lecturer in Spanish**

L. Avery, B.A. (Toronto) Ph.D. (Colorado)
*Sessional Lecturer in Physics**

Midge Ayukawa, B.Sc., M.Sc. (McMaster)
*Senior Demonstrator in Chemistry**

E. Baldock
*Sessional Lecturer in Geography**

F.E. Banim, Professor Emeritus (Carleton)
*Sessional Lecturer in Physical Anthropology, St. Patrick's College**

Ivan Barclay
*Sessional Lecturer in Journalism**

W.R. Barnes, M.A. (Carleton)
*Sessional Lecturer in Psychology, St. Patrick's College**

Liane Barsony, L. ès L. (Montréal) M.A. (McGill)
*Sessional Lecturer in German**

R.L. Beatty, B.A. (Toronto)
*Sessional Lecturer in Mathematics**

A. Belkauri, M.B.A. (Illinois) Ph.D. (Syracuse)
*Sessional Lecturer in Accounting**

M. Bercovitch, B.Sc., M.Sc. (McGill) Ph.D. (Yale)
*Sessional Lecturer in Physics**

R.M. Bergin, B.B.A. (New Brunswick) M.B.A. (Western Ontario) R.I.A.
*Sessional Lecturer in Accounting**

H. Berndt, B.Com., M.A. (Carleton)
*Sessional Lecturer in Economics**

H.J. Bernstein, B.A., M.A., Ph.D. (Toronto)
*Adjunct Professor in Chemistry**

K. Binks, B.A. (Queen's) LL.B. (Saskatchewan) Q.C.
*Sessional Lecturer in Law**

I.T. Bischof, B.A. (Carleton), M.A. (Illinois)
*Sessional Lecturer in French, St. Patrick's College**

H.L. Black, B.A., B.J. (Carleton) M.A. (McGill) M.A. (Carleton)
*Sessional Lecturer in Political Science, St. Patrick's College**

Robert Blackwood, B.A. (Western Ontario)
*Sessional Lecturer in Journalism**

R.L. Borden, M.Sc. (Alberta) M.B.A. (Western Ontario)
*Sessional Lecturer in Geology**

R. Botros, B.Sc., M.Sc. (Alexandria) D.Eng. (Karlsruhe)
*Adjunct Professor in Architecture**

Jaroslav A. Boucek, B.A. (Sir George Williams) M.A. (Montréal) Ph.D. (Ottawa)
*Sessional Lecturer in History**

E.L. Bousfield, M.A. (Toronto) Ph.D. (Harvard)
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J.-G. Boutin, M.Sc. (Carleton)
Senior Demonstrator in Physics

William Bowen, B.A., B.Mus. (Carleton) M.A. (Toronto) A.R.C.M. (London) A.R.C.T. (Toronto)
*Sessional Lecturer in Music**

R.W. Boyle, M.A. Sc., Ph.D. (Toronto) F.R.S.C.
*Special Lecturer in Geology**

R.W. Brownlee, B.Com. (Carleton) C.A.
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K.J. Calder, B.A., M.A. (Saskatchewan) Ph.D. (London)
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D.M. Caughey, B.Sc. (New Brunswick) Ph.D. (London)
*Sessional Lecturer in Engineering**

J. Chenier, B.A., M.A. (Carleton)
*Sessional Lecturer in Economics**

W. Chudobiak, B.Sc. (Alberta) M.A. Ph.D. (Carleton)
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J.-M. Comeau, B.A., B.Sc. (Montréal) M.A.Sc. (Waterloo)
*Sessional Lecturer in Architecture**

L. Connidis, B.A., M.A., Ph.D. (Queen's)
*Sessional Lecturer in Economics**

L.A. Cormican, Professor Emeritus (Carleton)
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J. Curtis, B.A. (British Columbia) A.M., Ph.D. (Harvard)
*Sessional Lecturer in Economics**

R. Da Costa, B.A. (Heriot-Watt) M.B.A. (Minnesota)
*Sessional Lecturer in Accounting**

W. Dawson, B.Eng. (McGill)
*Sessional Lecturer in Architecture**

R.L. Deaton, B.A. (Wisconsin)
*Sessional Lecturer in Economics**

P.Y. Delage, B.A. (Ottawa) LL.L. (Ottawa)
*Sessional Lecturer in Law**

J. de Mercado, M.Sc., Ph.D. (Ottawa) P.Eng.
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*Sessional Lecturer in Engineering**

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*Adjunct Professor in Chemistry**

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*Senior Demonstrator in Chemistry**

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*Sessional Lecturer in Law**

R.T. Elworthy, M.B.E., B.Sc., Ph.D. (London)
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T.A.G. Gavin
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*Visiting Lecturer in Biology**

Charles Gordon, B.A. (Queen's)
*Sessional Lecturer in Journalism**

Ted Grant
*Sessional Lecturer in Journalism**

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Laboratory Supervisor and Sessional Lecturer in Biology

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J. Hatt, B.A. (Redlands) M.A. (Alberta)
*Sessional Lecturer in Sociology, St. Patrick's College**

Pauline Hemming, M.A. (Edinburgh)
*Sessional Lecturer in English**

Lorraine Hernández, B.A. (Carleton) M.A. (Illinois)
*Sessional Lecturer in Spanish**

L. Higgs, B.Sc. (New Brunswick) Ph.D. (Oxford)
*Sessional Lecturer in Physics**

G.N. Hillmer, B.A., M.A. (Toronto)
*Sessional Lecturer in History**

G.L. Hopkins, B.Eng. (McGill) M.A. (Carleton)
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K. Hranchuk, M.A., Ph.D. (Carleton)
*Sessional Lecturer in Psychology, St. Patrick's College**

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*Sessional Lecturer in Engineering**

M. Hurd, M.Sc. (Carleton)
*Sessional Lecturer in Mathematics**

T. Hutchinson, B.A. (Carleton)
*Sessional Lecturer in Spanish**

Anne M. Hutton, B.Sc. (Reading) D.I.C. (Imperial) Ph.D. (London)
*Sessional Lecturer in Biology**

H. Inhaber, B.Sc. (McGill) M.Sc. (Illinois) Ph.D. (Oklahoma)
*Sessional Lecturer in Physics**

E. Irving, M.A., M.Sc., S.D. (Cambridge)
*Special Lecturer in Geology**

S. Isaac, B.Com. (Leeds) M.A. (Cambridge)
*Sessional Lecturer in Economics**

W.C.V. Johnson, B.Com. (McGill) LL.B. (Queen's) C.A.
*Sessional Lecturer in Law**

C.C. Johnston, B.A. (Toronto) LL.B. (York)
*Sessional Lecturer in Law**

E.A. Johnston, B.B.A. (New Brunswick) LL.B. (Queen's)
*Sessional Lecturer in Law**

P. Jones, B.Sc. (Wales) B.D., B.A. (London) D.D. (Union College)
*Sessional Lecturer in Religion**

R. Judge, NA. (Durham) P.Eng., N.D.C.
*Sessional Lecturer in Architecture**

D.J.L. Kennedy, B.A.Sc. (Toronto) M.S., Ph.D. (Illinois)
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L. Kenward, B.A. (Royal Military College) M.A. (Ottawa)
*Sessional Lecturer in Economics**

R. Kerr, M.A. (Carleton)
*Sessional Lecturer in Economics**

T.R. Khan, M.Sc. (New South Wales)
*Senior Demonstrator in Chemistry**

Brigitta Kiessling, B.Sc. (Carleton)
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Janet Kilroy, B.A. (Carleton)
*Sessional Lecturer in Spanish**

George J. Klein, B.A.Sc. (Toronto)
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L. Klimpel, B.Sc. (Carleton)
*Senior Demonstrator in Chemistry**

Annegret Koch, B.A., M.A. (Carleton)
*Sessional Lecturer in German**

L. Kos-Rabcewicz-Zubkowski, LL.M. (Warsaw) LL.D. (Paris)
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Carl F. Kropp, B.Sc. (Queen's) B.Sc., M.Sc. (Carleton)
*Sessional Lecturer in Engineering**

L.P. Lefkovitch, B.Sc. (London)
*Adjunct Professor in Biology**

R.F. Legget, B.E., M.E., D.Eng. (Liverpool) LL.D. (McMaster, Queen's, New Brunswick, Toronto, Glasgow)
D.Sc. (Waterloo, Western) D.G.Sc. (Charles, Prague)
F.R.S.C., F.G.S.A., F.E.I.C.
*Sessional Lecturer in Engineering**

N. LePan, B.A. (Carleton) M.A. (Toronto)
*Sessional Lecturer in Economics**

G. Levitz, B.Com. (Dalhousie) C.A.
*Sessional Lecturer in Accounting**

A. Lewinson, M.Sc. (Odessa) M.A. (Ottawa)
*Sessional Lecturer in Russian**

L. Librande, B.A. (St. Louis) M.A. (Syracuse) M.A. (McGill)
*Sessional Lecturer in Religion**

R. Lifeso, B.Sc. (Carleton)
*Sessional Lecturer in Mathematics**

E.E. Lindquist, B.Sc., M.Sc., Ph.D. (California)
*Adjunct Professor in Biology**

J.M. Lindsey, Ph.D. (Cambridge)
*Demonstrator in Physics**

I. Lithwick, B.A., M.A. (Toronto) Ph.D. (Western)
*Sessional Lecturer in Economics**

J.G. MacDonald, B.A. (Queen's)
Demonstrator in Geology

R.S. MacLellan, B.A. (St. F. Xavier) LL.B. (Dalhousie)
*Sessional Lecturer in Law**

Angelika Manyoni, Staatsexamen (Cologne)
*Sessional Lecturer in German**

A.T. Matheson, B.A., M.Sc. (British Columbia) Ph.D. (Toronto)
*Adjunct Professor in Biology**

G.M. Matthews, B.Sc. (Queen's) M.B.A. (Chicago) P.Eng.
*Sessional Lecturer in Engineering**

John McCrea, B.Com. (Carleton)
*Sessional Lecturer in Accounting**

B.A. McIntosh, M.Sc. (Western Ontario)
*Senior Demonstrator in Physics**

J. McNeill, B.Sc., Ph.D. (Edinburgh)
*Adjunct Professor in Biology**

D. Menagh, B.Sc. (Carleton)
*Senior Demonstrator in Physics**

Marion Moen, B.Sc., (British Columbia)
*Senior Demonstrator in Chemistry**

Carl Mollins, B.A. (Toronto)
*Sessional Lecturer in Journalism**

R.K. Moores, B.A. (Sir George Williams), M.A. (New School for Social Research)
*Sessional Lecturer in Economics, St. Patrick's College**

Basea Mosi6n, B.A. (Carleton)
*Sessional Lecturer in Spanish**

I. Munro, B.A. (Western Ontario)
Demonstrator in Geology

P. Nador, Dip.Eng. (Technical University of Budapest)
M.Eng. (McGill)
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S.A. Narang, B.Sc., M.Sc. (Punjab) Ph.D. (Calcutta)
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M.D. Nelson, B.A., M.A. (Carleton)
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H.A. Newman, B.A., LL.B. (Dalhousie)
*Sessional Lecturer in Law**

R. Nichols, B.A. (UBC) M.A. (McMaster)
*Sessional Lecturer in Religion**

N. N6mez, Lic. en Filosofia (Chile)
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B. Padolsky, B.Arch. (Manitoba) M.Sc. (Edinburgh)
M.R.A.I.C.
*Sessional Lecturer in Architecture**

G. Panico, B.A. (M. Pagano) M.A. (Ottawa)
*Sessional Lecturer in Italian**

Denise Papillon, B.A. (St. Lawrence College)
*Sessional Lecturer in Spanish**

R.A. Parson, B.Eng. (Carleton)
Sessional Lecturer in Engineering

J.C. Patry, B.Eng. (Carleton)
*Laboratory Demonstrator and Sessional Lecturer in Engineering**

Ulrike Paul, Dr.Phil. (Berlin)
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María Esther Pennefather, Maestra Normal Unam. (Mexico) M.A. (Carleton)
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M. Phelan, B.A. (Loyola) LL.B. (Dalhousie)
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*Sessional Lecturer in Mathematics**

W.G. Pilsworth, B.A. (Carleton)
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Ross Pratt, L.R.S.M., L.R.A.M., F.R.A.M. (London)
A.T.C.M. (Toronto)
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Virginia Prince, B.A. (Toronto)
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- I.E. Puddington, B.Sc. (Mount Allison) M.Sc., Ph.D. (McGill)
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- Mina Pun, B.Sc., M.Sc. (British Columbia)
*Senior Demonstrator in Chemistry**
- W. Radburn, B.Com. (Ottawa) M.B.A. (Washington) C.A.
*Sessional Lecturer in Accounting**
- F. Radford, B.A. (Queen's)
Sessional Lecturer in Engineering
- Jaromira Rakušan, M.Ling., Lit.Sci. (Charles, Prague)
*Sessional Lecturer in Linguistics and Russian**
- R.O. Ramseier, B.Sc. (Burgdorf) M.Sc. (Dartmouth)
*Sessional Lecturer in Geography and Geology**
- E. Ratushny, B.A., LL.B. (Saskatchewan) LL.M. (London, Eng.) LL.M. (Michigan)
*Sessional Lecturer in Law**
- D.J. Rebin, B.A. (Saskatchewan)
*Demonstrator in Physics**
- Mary-Jane Binks Rice, B.A. (Carleton) LL.B. (Queen's)
*Sessional Lecturer in Law**
- C. Rioux, B.A., M.A. (Carleton)
*Sessional Lecturer in Architecture**
- H.A. Robertson, B.Sc., Ph.D. (Edinburgh) F.R.I.C., F.R.S.
*Adjunct Professor in Biology**
- T. Rochefort, B.Com. (Carleton) M.B.A. (York)
*Sessional Lecturer in Economics**
- P. Rock, B.Com. (St. Patrick's) LL.B. (Ottawa)
*Sessional Lecturer in Economics**
- J.D. Rodger, B.Eng. (Carleton)
Demonstrator and Sessional Lecturer in Engineering
- D. Rogers, Ph.D. (Toronto)
*Sessional Lecturer in Physics**
- L.A. Roine, LL.B. (Ottawa)
*Sessional Lecturer in Law**
- E. Rolfe, B.Sc. (London)
*Senior Demonstrator in Physics**
- C.W. Ross, B.Sc. (E.E.) (New Brunswick) B.Sc. (M.E.) (U.S. Naval Post-Graduate School) M.Sc. (Aero) (M.I.T.) M.A. (Carleton)
*Sessional Lecturer in Engineering**
- Heather Ross, B.A. (Carleton)
*Sessional Lecturer in Spanish**
- R.H. Rotenberg, B.Com. (Sir George Williams) M.B.A. (McMaster) Ph.D. (Penn. State)
*Sessional Lecturer in Economics**
- R.A. Ruddell, B.A., M.A. (Manchester)
*Sessional Lecturer in Sociology, St. Patrick's College**
- Bob Rupert
*Sessional Lecturer in Journalism**
- A. Salmon, B.Sc. (Carleton)
Demonstrator in Physics
- P.W.R. Sargeant, B.Sc. (Carleton)
*Senior Demonstrator in Physics**
- D.C. Savage, B.A. (McGill) Ph.D. (London)
*Sessional Lecturer in History**
- F. Sbrocchi, M.B.A. (Western Ontario) R.I.A.
*Sessional Lecturer in Accounting**
- Helmut Schade, C.P.S.S. (Carleton)
*Sessional Lecturer in Journalism and Photographic Supervisor in Architecture**
- Ann Schau, B.Sc. (British Columbia) B.Mus. (Carleton)
Sessional Lecturer in Music
- M. Selucka, Diploma in Law, Ph.D., Dr. Jur. (Prague)
*Sessional Lecturer in Political Science, St. Patrick's College**
- D.H. Shields, B.Sc. (Saskatchewan) D.I.C. (Imperial) Ph.D. (Manchester)
*Sessional Lecturer in Engineering**
- S. Shubin, B.Arch. (Montreal) M.S. (Stanford)
*Sessional Lecturer in Architecture**
- D.T. Siegal, B.Sc. (Com.) (Louisville) C.G.A.
*Sessional Lecturer in Accounting**
- Hugh W. Silverman, Q.C., B.A., M.A. (Toronto) LL.M. (New York)
*Sessional Lecturer in Law**
- K.H. Simpson, B.E.Sc., M.A. (Western Ontario)
*Sessional Lecturer in Economics**
- I.C.P. Smith, B.Sc., M.Sc. (Manitoba) Ph.D. (Corpus Christi)
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*Senior demonstrator in Chemistry**
- A.D. Stanley, M.Sc., Ph.D. (British Columbia)
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*Sessional Lecturer in Architecture**

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G.D. Taylor, B.A., M.A. (British Columbia)
*Sessional Lecturer in Geography**

A.R. Thomas, B.Com. (Toronto) C.A.
*Sessional Lecturer in Accounting**

D.A. Thomas, B.Eng. (Carleton)
Sessional Lecturer in Economics and Engineering

D.R. Thomas, Ph.D. (Imperial)
*Sessional Lecturer in Mathematics**

J. Thomson, B.A., M.B.A. (Queen's)
*Sessional Lecturer in Economics**

R. Thomson, B.Sc., Ph.D. (Glasgow)
*Sessional Lecturer in Engineering**

W. Throop, B.A., M.A. (Carleton) M.Sc. (Carnegie-Melon)
Sessional Lecturer in Architecture

Sonia Tilson, M.A., Dip.Ed. (Wales)
*Sessional Lecturer in English**

G.C. Topp, B.S.A., M.S., Ph.D. (Wisconsin)
*Adjunct Professor and Sessional Lecturer in Geography**

Jean Trevelyan, F.R.C.O., L.R.A.M., A.R.C.M. (London)
*Sessional Lecturer in Music**

M.E. Ulug, B.Sc., M.Sc. (Durham) Ph.D. (Carleton)
*Sessional Lecturer in Engineering**

Halina Van de Lagemaat, B.A. (Carleton)
*Sessional Lecturer in Russian**

B. Veinot, B.Com. (Sir George Williams) C.G.A.
*Sessional Lecturer in Accounting**

H. Walker, B.Sc., M.Sc. (British Columbia) Ph.D. (Manitoba)
*Sessional Lecturer in Economics, St. Patrick's College**

P. Louis Waller, LL.B. (Melbourne) B.C.L. (Oxford)
Adjunct Professor of Law

P.J.S. Watson, Ph.D. (Durham)
*Sessional Lecturer in Physics**

R.G. Watters, M.A., Ph.D. (Carleton)
*Sessional Lecturer in Psychology, St. Patrick's College**

Max H. Wershof, Q.C., B.A., LL.B. LL.D. (Alberta)
Adjunct Professor of Law and International Affairs

B.A. Westell, B.A. (Waterloo) M.B.A. (Western)
*Sessional Lecturer in Economics**

Mary A. Wickens, B.Sc. (Manitoba)
Demonstrator in Geology

Helen Wilson, B.A. (Carleton)
*Sessional Lecturer in Spanish**

Keith Wilson, Ph.D. (Queen's)
*Sessional Lecturer in English**

D.M. Wood, M.A. (Toronto) Ph.D. (McMaster)
*Adjunct Professor in Biology**

G.H. Wood, Ph.D. (British Columbia)
*Instructor in Physics**

Gurli Aagaard Woods, Forprøve (Aarhus)
*Sessional Lecturer in German**

D. Wren, M.R.A.I.C.
*Sessional Lecturer in Architecture**

Anna Wurtele, M.A. (McGill)
*Sessional Lecturer in English**

Bruce Yemen, B.A. B.J. (Carleton)
*Sessional Lecturer in Journalism**

Calendar of Milestones

The Institution

1942

Ottawa Association for the Advancement of Learning established to develop Carleton College. At first the College offered only evening classes in introductory university subjects, with some courses in Public Administration.

1943

Ottawa Association for the Advancement of Learning incorporated.

1945

Beginning of day classes and full-time teaching. Establishment of the Faculty of Arts and Science, including courses in Journalism, and First year Engineering.

1946

Move from rented premises to the First Avenue campus, formerly Ottawa Ladies' College. First degrees awarded, three in Journalism and three in Public Administration.

1947

The College committed itself to complete Major and Honours courses, the Third year of the program being offered for the first time in 1947-48, the Fourth year in 1948-49, and the Fifth (Honours) year in 1949-50.

1949

First degrees in Arts, Science, and Commerce awarded. Formation of Senate.

1950

First Honours degrees in Arts and Science awarded.

1952

The Carleton College Act 1952 passed by the Ontario Legislature. This changed the corporate name to Carleton College. It also confirmed the power to grant degrees.

1952-53

Property for new campus acquired, on the site between the Rideau River and the Rideau Canal.

1953

Establishment of the School of Public Administration.

1954

Appointment of Architectural Associates for Carleton to prepare first master plan and to design first group of buildings. First honorary degree of LL.D. conferred on Dag Hammarskjöld, Secretary-General of the United Nations.

1955

First Master's degree awarded.

1957

The Carleton University Act, 1957. Establishment of the School of Engineering. Establishment of the Institute of Canadian Studies.

1959

Move to Rideau River campus, following construction of the Henry Marshall Tory Building (Science), the Maxwell MacOdrum Library, and Norman Paterson Hall (Arts).

1961

First degrees in Engineering awarded. First Ph.D. degree awarded.

1962

Students accommodated in residences on campus for the first time.

1963

Reorganization into Faculties of Arts, Engineering, Science, and Graduate Studies. Committee on Soviet and East European Studies established.

1966

Establishment of the School of International Affairs. Establishment of the School of Commerce. Comparative Literature Committee established.

1967

Integration of St. Patrick's College as a division of the Faculty of Arts, and of the School of Social Work on the St. Patrick's campus.

1968

Establishment of the School of Architecture. New University Government established with student representatives at all levels of the University system from Department to Board of Governors. First year of the academic exchange agreement between Carleton and the University of Leningrad.

1969

Free Choice First year initiated for the Faculty of Arts. Linguistics Committee established.

1970

Agreement completed between Carleton and University of Ottawa to accept "visiting students" at the graduate level. Biochemistry degree program initiated.

1971

Unified Liberal Arts Program established for St. Patrick's College. General Science Degree Program established with Environmental Studies program available.

1972

School of Social Work is accommodated on the Rideau River campus. A new one year French program is offered at St. Patrick's College for students wishing to improve

their knowledge of the French language and culture by one year's intensive study.

1973

First degrees in Architecture awarded. St. Patrick's College moves to new facility on the Rideau River campus. Establishment of the School of Industrial Design. New Athletics complex, with a fifty-metre pool and a fitness centre opened.

1974

Faculty of Graduate Studies renamed Faculty of Graduate Studies and Research. School of International Affairs renamed The Norman Paterson School of International Affairs. First courses offered off-campus in Lanark County and downtown Ottawa. St. Patrick's College Division held first Convocation ceremony at new location on Rideau River campus.

Enrolment

8,450 full-time students registered at the University in the fall of 1974; 7,919 in the main University and 531 at St. Patrick's College. There were 6,035 students taking courses on a part-time basis.

Presidents

1942-47

Henry Marshall Tory

1947-55

Murdoch Maxwell MacOdrum

1955-56

James Alexander Gibson (Acting)

1956-58

Claude Thomas Bissell

1958-72

Arnold Davidson Dunton

1972-

Michael Oliver

Chancellors

1952-54

Harry Stevenson Southam

1954-68

Chalmers Jack Mackenzie

1969-73

Lester Bowles Pearson

1973-

Gerhard Herzberg

University

Carleton University is located on a picturesque 152 acre site between the Rideau River and the Rideau Canal, a few miles south of the Parliament Buildings in Ottawa.

Begun in 1942 as a part-time college to serve the needs of a wartime population, Carleton now has an enrolment of over 15,000 full and part-time students and 608 full-time members of faculty.

The University offers undergraduate degrees in Arts, Science, Engineering, Architecture, Industrial Design, Commerce, Journalism, and Music and graduate degrees in 28 disciplines. Areas of specialization include Canadian Studies, Comparative Literature, Anthropology, Religion, International Affairs, Public Administration, Soviet and East European Studies, Architecture, Industrial Design, Journalism, Law, Linguistics and Social Work.

To meet the changing needs of society, Carleton is continuing to develop interdisciplinary programs of study within and across its four faculties: Arts, Science, Engineering and Graduate Studies and Research.

Since its inception, Carleton has maintained a close liaison with Ottawa and the Ottawa Valley community, paying particular attention to the needs of mature matriculants, teachers, public servants and people interested in furthering their education on a full or part-time basis. Carleton has recently taken courses into the community, offering two courses for the first time in Lanark County and two in downtown Ottawa.

Evening courses, extension courses, public lectures, films, speaking engagements, concerts, conferences, conventions and recreational activities bring the community and Carleton together on a year round basis.

The first three buildings on the Rideau River campus were opened in 1959. There are now 23 buildings on the Rideau River campus. By 1963 facilities had been expanded to include Southam Hall, the University Commons, the first two residences (Renfrew House and Lanark House), the University Gymnasium, and extensions to the Library and Paterson Hall. In 1964 the first two sections of the C.J. Mackenzie Building for Engineering were opened, with additional wings completed in 1966 and 1968. The E.W.R. Steacie Building for Chemistry was completed in 1965, along with two more residences (Grenville House and Russell House), and a

Maintenance Building and Central Heating Plant (enlarged in 1969). The Physics Building was opened in 1966 and in 1972 was renamed the Herzberg Laboratories for Physics in honour of Gerhard Herzberg. In 1974 a telescope was built on top of these laboratories. The Loeb Building for Social Sciences was completed in 1967.

Controlled Environmental Laboratories for Biology, an addition to the Gymnasium, and the Administration Building were completed in 1969, and residential facilities expanded to include a new University Commons and Glengarry House, bringing the total residence places available to 1,371.

The University Centre was opened in 1970, providing facilities for all members of the University community, including recreational facilities, food services, a meeting-dining room, a coffee house, general and specialized lounges, multi-purpose hall, variety store, barber shop, the Faculty Club, and offices for the Counselling and Health Services, Students' Association and Alumni Association. A new student pub was opened in 1974. Facilities in the University Centre are also available for use by interested groups in the Ottawa community. A community switchboard keeps people in touch with activities on campus and in the community. A 658-car parking garage was also completed in 1970. A 22-storey Arts building was opened in the Fall of 1971.

The School of Architecture building was completed and in use in the Fall of 1972. In the Fall of 1973 St. Patrick's College moved to the Rideau River campus. The new Athletics complex opened in the Winter of 1974.

Carleton's location in Canada's capital city brings many benefits to both its students and its professors. The mutually beneficial exchange of students, scholars and facilities between educational and government institutions helps to make Ottawa the open education centre it should be.

St. Patrick's College

St. Patrick's College, situated on the Carleton campus, is a division of the Faculty of Arts and offers an alternative "small college" approach to undergraduate studies within the framework of the larger University environment. Integrated and multidisciplinary programs add depth to the special goals of St. Patrick's College which brought with it 40 years of tradition as a liberal arts college when it integrated with Carleton University in 1967.

In 1973, the St. Patrick's College division moved from its location on Echo Drive to a new College facility on the Rideau River campus. In addition to classroom, seminar room, office and auditorium/theatre space the College building provides food services, recreational space, a fine arts room and a language lab. With its move, the

College intensified its efforts to provide a different atmosphere and approach to undergraduate studies. New methods and new developments in teaching and learning continue to be the main emphasis.

In 1971 a Unified Liberal Arts Program was launched with emphasis on interdisciplinary study and offering an alternative to the conventional, course-gearred approach to education. The following year a one year French Program was begun offering students an opportunity to spend one year of intensive study in French. In 1974 a special Senate committee to study the future role of the College was set up and will be bringing out its report early in 1975.

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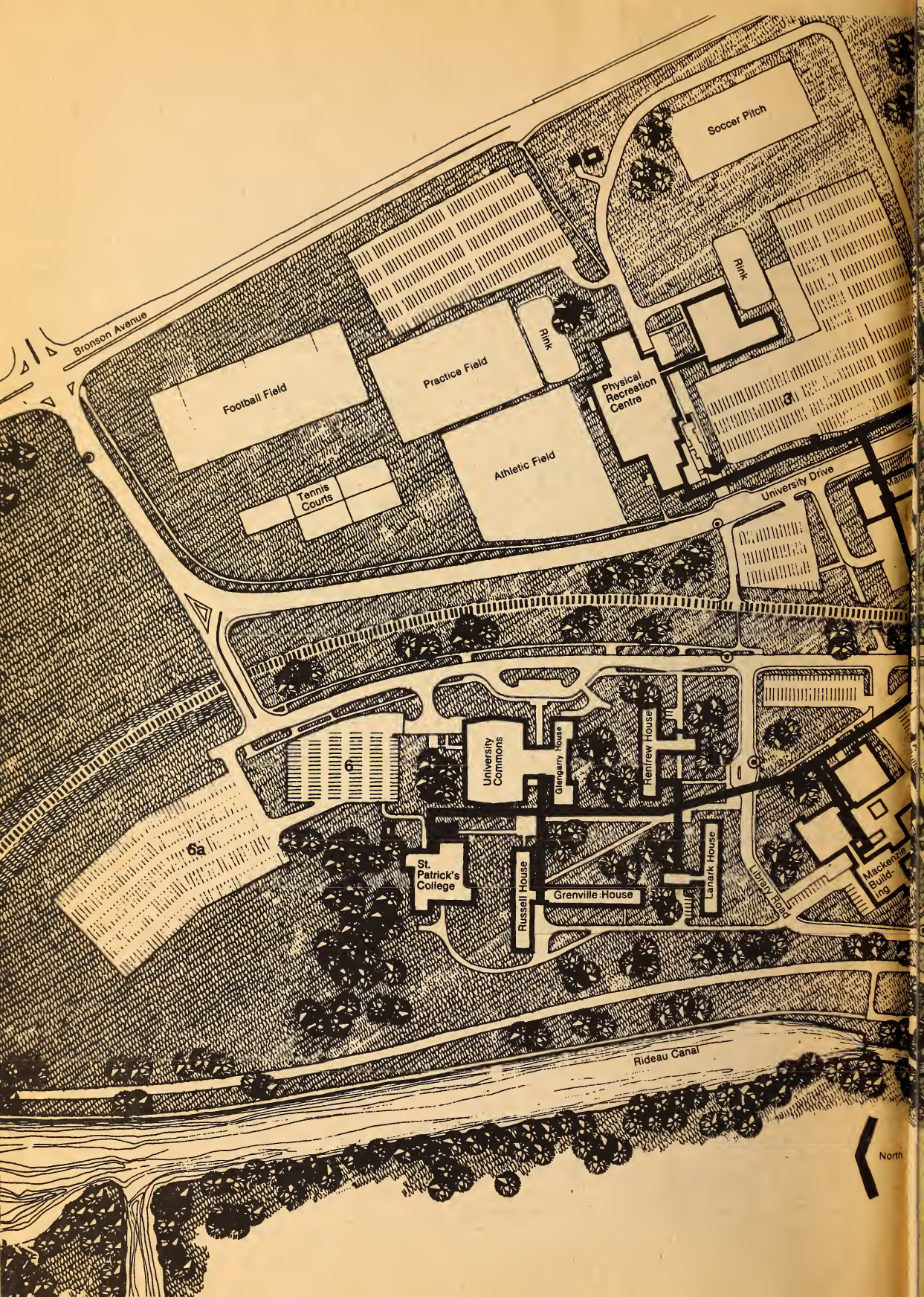
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Bronson Avenue

Football Field

Tennis Courts

Practice Field

Athletic Field

Physical Recreation Centre

Soccer Pitch

Rink

University Drive

6a

St. Patrick's College

University Commons

Glenora House

Tenirew House

Russell House

Grenville House

Lanark House

Library Building

Mackenzie Building




Rideau Canal

North

Carleton University

Rideau River Campus
Colonel By Drive, Ottawa, Canada K1S 5B6
Telephone: 613-231-4321



-  Tunnel
-  Tunnel Entrance
-  Bus Stop

Campus information and security in foyer of
Administration Building or Maintenance Building

0 100 200 400 Feet

1973 © Carleton University

1975

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1976

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